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# Higher Education and the Demands of the New Economy in Latin America

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**Table of contents**

## List of Tables and Figures

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## I - Summary

This paper discusses the ability of a group of Latin American national higher education systems to provide their countries with the competencies and skills needed to participate in the modern, knowledge-based societies of the 21st century. The initial assumption is that there is a growing demand for technical skills, which are necessary for the countries to develop their innovation capabilities. The hypothesis is that the existing higher education institutions, for reasons we should explore, are unable to respond adequately to this demand. The empirical manifestation of this lack of correspondence between the requirements of the knowledge society and the way higher education functions would be the queuing of students at the doors of higher education institutions, unable to enter for reasons of different kinds. If this were the case, then it would be clear that these institutions would need to change, to respond more effectively to the new demands.

To examine this hypothesis, we start with a discussion of the roles of knowledge in modern societies, in the developed world and in the Latin American region. In this section, we argue that the demand for technical, science-based skills is limited at best to a segment of the working population, while most of the existing jobs are in services and in cultural or symbolic activities of different kinds. If this is true for the developed economies, it is still more important to the Latin American region, where the modern, technological intensive sector of the economy is much smaller.

Next, we briefly examine the roles of higher education in modern societies, its relation to the distribution of competencies, and its different functions. Here, we argue that modern higher education institutions should perform a plurality of important functions, from the short-term provision of skills and abilities required by the job market to the medium and long-term improvement of scientific knowledge, technical competence, and the building and maintenance of social capital. These functions are similar to the distinction adopted by economists between "private" and "social", or public, benefits of higher education, which may overlap, but may also be at odds. Besides these broad functions, higher education institutions respond to the aspirations for social mobility of new generations, to the interests and motivations of professional

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* Prepared at the request of the World Bank. The opinions and interpretations presented in this paper are the sole responsibility of the author, and cannot be assumed to represent the views of the World Bank.

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and academic communities, and to their own vested interests. In this section, in short, we argue that higher education institutions are more than a simple response from society to market demands for jobs and skills. They are also a place for knowledge creation and dissemination in the natural sciences and humanities, and a powerful instrument for social mobility and self-identity of large social groups. For this reason, policies to reform higher education systems and institutions are more complex and difficult than what a simple functional interpretation might suggest.

Section III provides a birds-eye view of the development of higher education in Latin America. A historical perspective is necessary, because, without it, it is impossible to understand why institutions are what they are, and how they can eventually be changed. In this section we show that, from the different existing models of higher education institutions in the 19th century (German, British, French), Latin American countries adopted the Napoleonic version, characterized by strong centralization and state control. We show how, in the second half of the 20th century, small higher education establishments devoted almost exclusively to the education in the learned professions turned into mass education systems.

This expansion was not a simple response to demands for skilled jobs, but, mostly, to the demands for social mobility of emerging urban groups who expected that prestigious jobs and recognition would follow from their state-sanctioned degrees. Largely, this expectation was fulfilled. Holders of higher education degrees would have privileged access to jobs in the civil service, get established in the liberal professions, and, even in the worse cases, they would secure better salaries and more job stability than others with lower qualifications. However, there was also frustration, expressed by the large number of persons who aspired to higher education and never had access to it, and to those who never concluded and obtained their degrees. Even for those who did, their achievements were often below their high expectations. This combination of high expectations and frustration explain the high levels of anomie and conflict that are so typical of Latin American higher education.

In this section we discuss three major implications of this transition from elite to mass higher education, in a context of feeble economic development: the changes in the student body, with the inclusion of persons coming from lower social strata, older, and willing to study part time; the transformation of old universities into complex institutions, with the development of a strong and politically organized academic profession; and institutional differentiation, with the development of different types of institutions, and a growing private sector. We end this section with a discussion of the problems of governance and control of such higher education systems, both within institutions and system wide.

Section IV looks into some detail at the way higher education has evolved in specific countries – Chile, Mexico, Peru, Brazil, Colombia - trying to see if the hypothesis that there is a strong demand for innovation skills, which institutions are unable to respond, can be confirmed. Depending on the availability of data, we examine how the national systems of higher education have evolved; their differentiation and segmentation into public and private sectors, and between different tiers; some characteristics of the labor market for higher education professionals; and the trends in the demand and supply for higher education in different careers. Contrary to the initial hypothesis, and except for a few fields, most notably in

medicine, we do not find evidence of queuing for admission in the technical and scientific-intensive careers and fields. Even in these fields, queuing seems to be more related to the prestige and expectations associated with these careers than with actual demands coming from the job market. What we do find is that, in all countries, higher education institutions seem to be very inefficient in their ability to retain students and lead them to the completion of their degrees, both in the public and in private sector, and we discuss some of the reasons for that. We also present, for each country, the policies for change that are being considered for making higher education more efficient and better adjusted to the current needs.

In section V, we look at what these countries are doing in terms of graduate (or "post-graduate") level, which is where the most intensive science and technology-based education is supposed to take place. We note that Brazil and Mexico have a sizeable graduate education tier, with small ones in the other countries. We also observe that there is a clear division between graduate education geared to the job market, which tends to place higher priority in business and commerce applications (and also to medical specialties) at the master's level, and graduate education with more emphasis in research and academic disciplines, geared mostly to the preparation of academic staff for higher education institutions.

In the concluding section, we argue that the starting hypothesis, that there is a strong market demand for innovation competencies, which is being thwarted by inefficiencies and rigidities of higher education institutions, does not seem to be confirmed by the evidence. The distribution of skills delivered by the countries' national higher education systems seem to be compatible with the market, and queuing is only found in some special fields (particularly medicine and dentistry) in public institutions. At the same time, there are problems of quality, inefficiency and social inequity that should be handled, if the existing higher education systems are to contribute to efforts to improve their countries' innovation competency and competitiveness. We note that higher education institutions tend to be very inefficient in terms of the proportion of entering students who conclude their degrees, particularly in the private institutions. In spite of the need for greater differentiation to respond to the different populations looking for higher education, there seems to be a drift toward the university model, which tends to discriminate against persons coming from lower socioeconomic backgrounds.

As proposals for reform, we stress that, in public higher education, it is important to make the institutions more autonomous to decide how best to use their resources, more competitive, and more responsive to public and private incentives for quality and efficiency. We discuss the moral hazards associated with credentialism, and the need to reduce the market value of academic certificates, giving more emphasis to actual skills and competencies; and we discuss the roles of government in higher education, emphasizing the issues related to the public regulation of the private markets for higher education. We also stress the need to create or expand a truly high quality segment of graduate education and research, which can equip the countries to open new opportunities and to participate in a highly competitive and technological-driven world market economy. This effort should be part of a broader policy for the development of the country's innovation capabilities. It does not have to respond to short-term market demands, and should not be expected to shape higher education as a whole.

## II - Higher education and the new knowledge societies

*The roles of knowledge in the new economy*

Knowledge is as a key component of the new economies. The following paragraph, from the forthcoming World Bank strategy paper on tertiary education, summarizes the current understanding:

> The ability of a society to produce, select, adapt, commercialize, and use knowledge is critical for sustained economic growth and improved living standards. Knowledge has become the most important factor in economic development. The OECD concluded, in a recent study on the determinants of growth, that "long-term growth rates in OECD economies depend on maintaining and expanding the knowledge base." The 1998/99 World Development Report (WDR) concurred in stating that "… today's most technologically advanced economies are truly knowledge-based…creating millions of knowledge-related jobs in an array of disciplines that have emerged overnight." The real growth of value added in knowledge-based industries has consistently outpaced overall growth rates in many OECD member countries in the past two decades. The figures for the 1986-1994 period were 3.0 percent for knowledge industries versus 2.3 percent for the business sector as a whole. Between 1985 and 1997, the share of knowledge-based industries in total value added has risen from 51 to 59 percent in Germany, 45 to 51 percent in the UK, and 34 to 42 percent in Finland (OECD, 2001).[1]

"Knowledge", however, is too ample a term, and we need to ask what kinds of knowledge modern societies actually require from their citizens.[2] Broadly, we can distinguish between two sets of skills that are imparted in higher education institutions – those that are primarily "technical" in nature (careers such as engineering, computer science, and the like), and others that are more "general" (involving the ability to think independently, work in teams, to communicate, be creative, solve problems). It is common to think that the first set of skills are more related to the "social" benefits of higher education, because of their usefulness in those activities, such as R & D, which seek to innovate, adapt, and adopt technologies; while the second skills would be more related to the "private" benefits of higher education. In this paper, we show that the proportion of persons working in technologically intensive jobs is relatively small even in leading economies, and much more so in the Latin American region. All national higher education systems should be able to provide a number of persons with the necessary skills to engage in activities of technological innovation and adaptation, whether at the edge of technological innovation, or as participants of broader multi-national networks. However, the pattern we find in Latin America, where most of the students are in the social professions and do not advance to higher degrees, is similar to what happens in the leading economies, and should not be considered an aberration.

For the OECD study mentioned above, "knowledge-based" industries include high and medium-high technology industries, communication services, finance,

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[1] World Bank forthcoming. The references are OECD 2000, "Science, Technology and Industry Outlook", p. 220, Table 2; and World Bank 1998.

[2] For a discussion, aimed mostly at South Africa, see Muller and Subotzky 2001.

insurance, other business services, and community, social and personal services. This definition is probably too broad. The knowledge requirements to produce aircraft, consumer electronics, communications equipment and network, or to provide medical, legal and financial advice, are very different in nature and scientific density from most services in business, community, social and personal work. For the former, the professional is supposed to muster a well-defined body of information, skills and procedures, while, for the latter, general verbal and communication abilities are paramount.

It does not follow from the growing importance of science-based technologies in industry and in the provision of services, therefore, that the general competence of the population about scientific matters is also increasing, or should increase. A recent study argues that, until the fifties, there was a "modernist" culture of science and technology in the United States and other industrialized countries, concerned with the control of nature by men, which "connected science, citizens, and liberal democratic politics productively to each other", and justified the assumption that science education and culture should be a central feature of modern citizenship. The passage from a technological culture based on mechanics and standard biology to another based on microelectronics, molecular biology and other complex fields have led to a growing gap between technology and the ordinary, educated citizen. In the past, "the ordinary American could inspect, imitate, apply and even improve modern technologies. The average citizen could therefore comprehend the causal principles by which modernist machines and tools worked". "By contrast, most post-modernist technologies are beyond the average American's comprehension. Ordinary citizens have no informed access to these technologies." Overall, "the shift to post-modernism may well have contributed to a decline in the American public's position as competent practitioners of technology." The American public is more educated today than it was twenty or thirty years ago, and students take more math and science in school than their parents did, but historical data from the National Assessment of Educational Progress suggest that "they may not be gaining much additional competence for their efforts", and, given the unprecedented demands for complex knowledge by post-modern technologies, "they are perhaps less equipped than previous generations to evaluate the technological culture in which they are immersed". [3]

It is too simple, therefore, to equate the knowledge skills required for participation in the modern society with the universal grasp and familiarity with current scientific and technological concepts. The competencies required from most people to work in the modern economy include verbal, communication and behavioral traits that do not depend on technical or scientific knowledge in the more usual sense of the word. It is possible to summarize the emerging working requirements in the following terms[4]. First, general intellectual qualifications become the main source of competence. These qualifications include the ability to think in abstract, to

[3] Merelman 2000

[4] There is a large and controversial literature on this topic. See, among others, Breier 1998; Fallows and Steven 2000; Kraak 1997; Muller and Subotzky 2001. What follows is based mostly on Paiva 1997.

concentrate attention in specific tasks, to be precise, and able to communicate in written, oral and visual forms. Clearly, these abilities are not content-specific. Second, the frontiers between intellectual and manual work, and between professional and home-based work, tend to blur. Intellectual work requires at least proficiency in the use of computers, and manual work requires familiarity with abstract concepts and complex procedures, standards, and instructions. The requirements for speed and efficiency spill over from the professional to the private spheres: "social life and leisure are also subject to these rules. We consume more, and more rapidly, not only material products, but culture, relationships, friendship, countries, regions, information. This requires real qualifications - a strong and a good educational foundation, together with virtues required to assume continuous adaptation – physical and psychic endurance, and patience"[5]. Third, professions as such become less important, even as the professional qualifications increase. "It is not just the disappearance of old professions and the emergence of new ones, but a clear devaluation of the traditional professions at all levels of competence". The market values specific competencies of individuals and highly specialized technical communities, regardless of their professional identities. The old professional careers are replaced by new patterns of long-life professionalization and reprofessionalization, based on solid educational foundations and new sociological and psychological virtues and disposition. For those who can participate, this new context creates new opportunities and possibilities, but generates also high levels of uncertainty, insecurity and frustration.

The available data and projections on employment for the United States as well as for Latin America show that, while knowledge intensive activities are expected to grow, they will still cover just a small percentage of the total labor force, with the bulk remaining in the communication, social interaction and service sectors. In the United States, which is presumably setting the trend for the knowledge intensive societies of the 21st century, the US Bureau of Labor Statistics estimates that, between the years 2000 and 2010, the number of jobs for "professional and related occupations", which are supposedly the more knowledge intensive, will increase by 26% by 2010, the highest growth rate of all occupational groups; but will still take up only 20% of the jobs. "Nearly three-quarters of the job growth for professional and related is projected for three subgroups—computer and mathematical occupations; health care practitioners and technical occupations; and education, training, and library occupations. A 10.3-percent increase is projected for self-employed professional and related occupations. Most growth among self-employed is projected for two subgroups—arts, design, entertainment, sports, and media occupations; and computer and mathematical occupations."[6]

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[5] Paiva 1997; my translation.

[6] Hecker 2001, p.58. These projections were made before the crisis that affected the high technology industries in the US in 2001, and they would be probably revised downwards today. This, however, is controversial. "In the 1990s, there was a lively debate between John Bishop from Cornell University and BLS economists on the validity of their projections. Bishop argued, using current employment data, that BLS projections grossly underestimated growth of professional related professions, by 34%, and overestimated the growth of lower skill jobs. According to him, the methods BLS used to project occupational employment missed an important portion of the upskilling that was

**Table 1 – United States, Employment by major occupational groups, 2000-2100.**

| United States, employment by major occupational group, 2000 and projected 2010 [Numbers in thousands of jobs] | | | | | | |
|---|---|---|---|---|---|---|
| | Employment | | | | change | |
| Occupational group | number | | Percent | | Number | Percent |
| | 2000 | 2010 | 2000 | 2010 | | |
| **Total, all occupations** | **145,594** | **167,754** | **100** | **100** | **22,160** | **15.2** |
| Management, business, and financial occupations | 15,519 | 17,635 | 10.7 | 10.5 | 2,115 | 13.6 |
| Professional and related occupations | 26,758 | 33,709 | 18.4 | 20.1 | 6,952 | 26.0 |
| Service occupations | 26,075 | 31,163 | 17.9 | 18.6 | 5,088 | 19.5 |
| Sales and related occupations | 15,513 | 17,365 | 10.7 | 10.4 | 1,852 | 11.9 |
| Office and administrative support occupations | 23,882 | 26,053 | 16.4 | 15.5 | 2,171 | 9.1 |
| Farming, fishing, and forestry occupations | 1,429 | 1,480 | 1 | 0.9 | 51 | 3.6 |
| Construction and extraction occupations | 7,451 | 8,439 | 5.1 | 5 | 989 | 13.3 |
| Installation, maintenance, and repair occupations | 5,820 | 6,482 | 4 | 3.9 | 662 | 11.4 |
| Production occupations | 13,060 | 13,811 | 9 | 8.2 | 750 | 5.7 |
| Transportation and material moving occupations | 10,088 | 11,618 | 6.9 | 6.9 | 1,530 | 15.2 |
| Source: US Bureau of Labor Statistics, http://www.bls.gov/news.release/ecopro.t02.htm | | | | | | |

In Latin America, economic growth in recent years has been erratic, and, when it took place, it was led by expansion in limited sectors of the economy of a few countries, through the introduction of new advanced, labor saving technologies, while most of the labor force kept working in small units requiring little or no professional competence and training. Some key economic information on the countries that will be discussed in this document can be seen on Table 2. All countries suffered violent drops in growth rates at some point, and some recovered better than others. At the end of the decade, Brazil, Chile and Mexico were at a similar level of economic development, characterized by a combination of modern dynamic centers and large sectors of the population living still in poverty; while Colombia and Peru were still lagging in more traditional economies, with about half the per capita income of the other three. The distribution of occupations by type shows that Chile has a distinctive larger percentage of persons in high-level positions, including professionals, with Brazil with the lower percentage[7]. Not shown in the table, there was a steady decline in the number of persons working in regular jobs, with a corresponding growth of the self-employed and the so-called "informal market".

underway in the U.S. economy" (Gregory Elacqua, personal communication). (See Bishop 1997; Bishop 1995).

[7] However, this figure should be taken with caution, since Chile has an unusual large vocational sector, whose graduates are classified as "technical workers". Table 3 uses a more narrow definition of "professionals", and the figure for Chile, although still high for the region, drops very significantly.

**Table 2 – Latin America, selected countries, economic growth and occupations**

| Latin America, selected countries, economic growth and occupations | | | | | |
|---|---|---|---|---|---|
| | Brazil | Chile | Colombia | Mexico | Peru |
| a) GNI per capita, Atlas method (current US$) | | | | | |
| 1990 | 2,670 | 2,190 | 1,180 | 2,830 | 780 |
| 1999 | 4,350 | 4,630 | 2,170 | 4,440 | 2,130 |
| b) Occupations of the urban population, by areas (%) | | | | | |
| agriculture | 8.1 | 6.0 | 3.2 | 2.3 | |
| mining | 0.3 | 1.7 | 0.4 | 0.5 | |
| manufacture | 13.9 | 15.0 | 16.4 | 20.6 | |
| electricity, gas, water | 1.0 | 0.9 | 0.6 | 0.7 | |
| constuction | 7.7 | 8.6 | 5.4 | 5.4 | |
| commerce | 20.7 | 20.8 | 27.4 | 22.0 | |
| transport | 4.9 | 8.4 | 7.5 | 5.4 | |
| finance services | 1.8 | 7.8 | 7.4 | 1.7 | |
| services | 41.1 | 30.0 | 31.5 | 41.3 | |
| other | 0.6 | 0.9 | 0.2 | 0.0 | |
| c) Occupations, by type, 1999 (%) | | | | | |
| Professionals, technicians | 10.6 | 18.3 | 12.1 | 13.1 | |
| directors, high-level civil servants | 6.5 | 6.3 | 1.9 | 3.2 | |
| administrative personnel | 8.3 | 10.8 | 10.5 | 12.0 | |
| traders, sellers | 14.7 | 9.0 | 21.4 | 19.5 | |
| service workers | 17.3 | 5.9 | 20.8 | 15.8 | |
| agricultural workers | 7.7 | 2.2 | 3.0 | 2.0 | |
| urban workers | 26.6 | 46.9 | 29.1 | 34.2 | |
| others | 8.2 | 0.6 | 1.2 | 0.2 | |
| sources: | | | | | |
| (a) World Bank National Accounts data<br>(b) and (c) U.N. Economic Commission for Latin America, Anuario Estadistico de America Latina y el Caribe, 2000 | | | | | |

A careful analysis of the existing data and projections carried out by the Economic Commission for Latin America shows that employment for persons in professional activities is not expected to rise very significantly in the region in the near future. For eight Latin American countries, the percentage of professionals in the labor force at the end of the 1990's was 3.1%. For Chile, the figure in 2000 in this table was 8.4%, and the projection for 2015, given the trends of the nineties and assuming an income growth rate of 4.8 for the occupations, is 10.4%. For Brazil, the figure for 2000 is 2.1%, and the projection for 2015, with a similar growth rate, is 3.5%.

**Table 3 – Latin America: some characteristics of occupational strata, 1997**

| Latin America: some characteristics of occupational strata, 1997(1) | | | |
|---|---|---|---|
| occupational strata | % of the labor force | mean income(2) | mean years of study |
| employers | 4.3 | 15.8 | 8.9 |
| directors, managers | 2.0 | 11.6 | 11.5 |
| professionals | 3.1 | 12.1 | 14.9 |
| technicians | 6.0 | 5.3 | 12.1 |
| administrative employees | 7.9 | 4.8 | 10.6 |
| employees in commerce | 13.4 | 3.6 | 7.3 |
| workers, artisans, drivers | 25.3 | 3.4 | 6.1 |
| personal services | 14.8 | 2.2 | 5.5 |
| agricultural workers | 19.6 | 1.8 | 2.9 |
| Soruce: ECLAC, based on special tabulations of household surveys of the countries | | | |
| 1. Weighted average for eight countries (Brazil, 1996; Chile, 1998; Colombia, 1998, Costa Rica, 1997; El Salvador, 1997; Mexico, 1998; Panama, 1997; and Venezuela, 1997) | | | |
| 2. In equivalents of the poverty line | | | |

As we will see below, the distribution of competencies of graduates coming out of higher education institutions in Latin America is congruent with the distribution of available jobs. From this, one could conclude that, while higher education may be providing private benefits to those going through their ranks, it is not generating enough social benefits, since it is not generating enough technical and scientific competencies. Would a government-driven supply of a large stock of well-qualified persons, beyond and above the short-term market demands, lead to an expansion of high technology firms, and a larger and more productive advanced economy?

Competence and entrepreneurship are key for the creation of new working opportunities. In a recent paper, Stern, Porter and Furman summarize the current literature on the issue, and present new evidence on the role of innovation for the development of nations.[8] For them, the supply of high quality manpower is one of the elements affecting economic growth. Other components are a broad innovation system, the presence of previously existing innovative clusters in the productive system, and appropriate linkages between the two. Besides, there are macroeconomic and international competitive constraints – it is necessary to have a good supply of investment capital, and not to be exposed to predatory competition and market barriers. The evidence from OECD countries, presented by Stern and others, suggest that there is room for convergence in innovative competitiveness through investments in human resources and institutional reform, but it is not an easy road. As the experience of many developing countries shows, investments in good higher education can also lead to brain drain to developed economies, with serious waste of resources and human capital.[9]

[8] Stern et al. 2000.

[9] "The effects of a brain drain in LA are not always negative, however, and nationals abroad can be turned into valuable monetary and intellectual assets for their home countries. According to World Bank figures, remittances to Latin America have become an important source of revenue, which translates into growth as it works through the economy. Also, educated Latin Americans working abroad in banks and multinational firms often channel foreign investment to the region. There are also efforts under way to tap educated migrants' skills. For example, Columbia and Uruguay have set up networks of expatriate researchers and engineers to foster joint research projects between foreign and local universities" (see The Economist 2002). (Gregory Elacqua, personal communication).

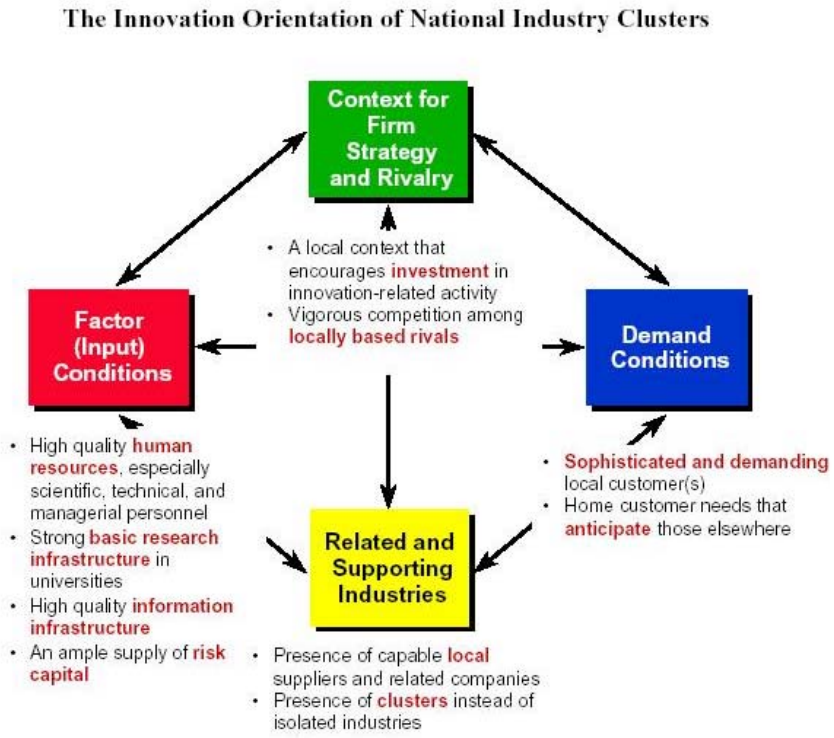
**Table 4 - The determinants of national innovative capacity**

**The determinants of national innovative capacity**

The determinants of national innovative capacity can be divided into several broad areas. First, national innovative capacity depends on the presence of a strong common innovation infrastructure, or crosscutting factors which contribute broadly to innovativeness throughout the economy. Among other things, the common innovation infrastructure includes a country's overall science and technology policy environment, the mechanisms in place for supporting basic research and higher education, and the cumulative "stock" of technological knowledge upon which new ideas are developed and commercialized. (…) Second, a country's innovative capacity depends on the more specific innovation environments in a country's industrial clusters. (…) Ultimately, it is the microeconomic conditions associated with a nation's clusters, which determine whether firms respond to technological opportunity and innovate at the global frontier. Third, national innovative capacity depends on the strength of linkages between the common innovation infrastructure and specific clusters. The productivity of a strong national innovation infrastructure is higher when specific mechanisms or institutions, such as a strong domestic university system and funding mechanisms for new ventures, migrate ideas from the common infrastructure into commercial practice.

Stern, Porter, and Furman 2000, p. 2-3.

**Table 5 – The Innovation Orientation of National Industry Clusters**[10]




*The roles of higher education*

Universities, or, more broadly, higher education institutions, are a key link in the production of knowledge and competence in the new economic environment, in all its different dimensions. A recent document sponsored by the World Bank and the United Nations states that

> The world economy is changing as knowledge supplants physical capital as the source of present (and future) wealth. Technology is driving much of this process, with information technology, biotechnology, and other innovations leading to remarkable changes in the way we live and work.
>
> As knowledge becomes more important, so does higher education. Countries need to educate more of their young people to a higher standard – a degree is now a basic qualification for many skilled jobs. The quality of knowledge generated within higher education institutions, and its accessibility to the wider economy, is becoming increasingly critical to national competitiveness.

[10] From Stern et al. 2000.

> This poses a serious challenge to the developing world. Since the 1980s, many national governments and international donors have assigned higher education a relatively low priority. Narrow – and, in our view, misleading – economic analysis has contributed to the view that public investment in universities and colleges brings meager returns compared to investment in primary and secondary schools, and that higher education magnifies income inequality.
>
> As a result, higher education systems in developing countries are under great strain. They are chronically under-funded, but face escalating demand – around half of today's higher education students live in the developing world. Faculty is often under-qualified, lack motivation, and is poorly rewarded. Students are poorly taught and curricula under-developed. Developed countries, meanwhile, are constantly raising the stakes. Quite simply, many developing countries will need to work much harder just to maintain their position, let alone to catch up. There are notable exceptions, but currently, across most of the developing world, the potential of higher education to promote development is being realized only marginally.[11]

Departing from previous assumptions, the Task Force challenged the notion that, for developing countries, basic education should have greater priority, because of its higher rates of return and equity considerations.[12] Beyond what could be measured in quantitative terms, the Task Force called attention to several important, less tangible roles of higher education:

- Unlock potential at all levels of society, helping talented people to gain advanced training whatever their background.
- Create a pool of highly trained individuals that exceeds a critical size and becomes a key national resource.
- Address topics whose long-term value to society is thought to exceed their current value to students and employers (for example, the humanities).
- Provide a space for the free and open discussion of ideas and values.

The relevance of these broad functions is undeniable, and they add to the role of higher education in improving the quality of education at all levels, and in providing society with needed skills and competence to face the requirements of the modern world.

*Mass higher education and the distribution of competencies*

The trend towards mass higher education is not a product of the more recent changes in the world economy, but predates them for several decades[13]. People look

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[11] The Task Force on Higher Education and Society 2000

[12] Gregory Elacqua notes that "there is increasing evidence that suggests that there are many exceptions to accepted wisdom that rates of return to lower levels of schooling are higher than to universities in developing countries, especially during sustained periods of rapid industrialization. It is also argued that the conventional wisdom may be based on methodologically flawed estimates and other theoretical shortcomings" (personal communication). See Carnoy, Ryoo, and Nam and Young-Sook 1993; Knight, Sabot, and Howey 1992; Bennell .

[13] See the classic articles by Martin Trow, from the early seventies: Trow 1972 and Trow and Carnegie Commission on Higher Education 1973.

for higher education for reasons that are often not related, or only indirectly related to economic and broader social functions. In the OECD countries, about 45% of the young are enrolled today in some kind of tertiary education, not necessarily because they see a clear link between what they do now and the jobs they will hold later, but because to continue to study is part of a generational trend, related to the extension of the youth years and the youth culture; and may be also a way of postponing the day when the student would have to face the dire realities of a shrinking job market. Public higher education institutions, more often than not, are not just agencies to train people and deliver them to the job market. They are non-profit institutions, living out of public subsidies, and having to respond to the interests and aspirations of their own staff, more directly than to the demands of their students and their future – and remote - employers. Private higher education, which is growing everywhere, is more tuned to market demands – to the students' expectations and demands for education, however, more than to the short-term requirements of the job market.

In broad terms, the distribution of students among different career patterns and fields of knowledge in higher education is consistent with the characteristics of the job market. In the United States, the predominance of the social-based disciplines among students at all levels suggest that activities related to inter-personal services and care are more preeminent than those requiring advanced scientific and technological skills, although, of course, social science disciplines can be very technical indeed as academic and research fields.

**Table 6 – United States: bachelor, master and doctor's degrees, 1997-1998.**

| United States, bachelor's, master's, and doctor's degrees conferred by degree-granting institutions,1997-1998 | | | |
|---|---|---|---|
| | **bachelor degrees requiring 4 or 5 years** | **master's degrees** | **doctor's degrees** |
| Biological sciences/life sciences | 5.56% | 1.46% | 10.90% |
| Business management, administrative services and marketing | 19.68% | 23.75% | 2.09% |
| Education | 8.95% | 26.66% | 21.97% |
| Engineering and engineering-related technologies | 6.24% | 6.30% | 3.79% |
| Health professions and related sciences | 7.12% | 9.13% | 8.03% |
| Psychology | 6.25% | 3.20% | 14.20% |
| Social sciences and history | 10.56% | 3.47% | 8.69% |
| others | 35.64% | 26.03% | 30.32% |
| Total | 1,184,406 | 430,164 | 46,010 |
| SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), ""completions" survey | | | |

**Table 7 – Changing patterns of higher education graduation in the United States**

**Changing patterns of higher education graduation in the United States**

Of the 1,184,000 bachelor's degrees conferred in 1997-98, the largest numbers of degrees were conferred in the fields of business (233,000), social sciences (125,000), and education (106,000). At the master's degree level, the largest fields were education (115,000) and business (102,000). The largest fields at the doctor's degree level were education (6,700), engineering (6,000), biological and life sciences (5,000) and physical sciences (4,600).

The pattern of bachelor's degrees by field of study has shifted significantly in recent years. Declines are significant in some male majority fields such as engineering and computer and information sciences. Engineering and engineering technologies declined 12 percent between 1987-88 and 1992-93, and then posted a further 5 percent decline between 1992-93 and 1997-98. Computer and information sciences grew rapidly during the 1970s and mid 1980s, but dropped 22 percent between 1987-88 and 1997-98. Other technical fields have been driven upwards in recent years, in part by increasing numbers of female graduates. For example, biological science degrees increased 28 percent between 1987-88 and 1992-93, and then rose 40 percent between 1992-93 and 1997-98.

United States, National Center for Education Statistics,
http://nces.ed.gov/fastfacts/display.asp?id=37

A similar pattern can be observed in Latin America, where most students enroll in the "social professions" (law, administration, social sciences, education and the humanities (Table 8). There are variations by countries – in Chile, for instance, the number of students enrolled in "engineering" and technology is much higher than in other places; but a closer look suggests that there are mostly short-term, vocational courses). This table shows also that the number of students graduating from higher education in the region is about one tenth of those enrolled, an indication of high levels of inefficiency. Since course programs usually last for about four years, an efficient system should have a relationship close of one forth. As it is, many students take much longer than expected to get their degrees, or do not get them at all.

**Table 8 – Latin America, students enrolled and graduation from higher education by fields of knowledge**

| Latin America, students enrolled and graduating from higher education by fields of knowledge, 1994 | | | | |
|---|---|---|---|---|
| | enrollment | | graduated | |
| | number | % | number | % |
| Education | 421,930 | 6.55% | 84,453 | 12.38% |
| Humanities | 743,183 | 11.55% | 47,974 | 7.03% |
| Soc. Sc, Law | 1,883,628 | 29.26% | 184,519 | 27.05% |
| Economics, administration | 778,318 | 12.09% | 105,624 | 15.49% |
| Medicine and Health | 727,862 | 11.31% | 82,535 | 12.10% |
| Sciences | 336,174 | 5.22% | 36,282 | 5.32% |
| Engineering and technology | 1,227,905 | 19.08% | 114,913 | 16.85% |
| Agriculture | 223,804 | 3.48% | 20,333 | 2.98% |
| others | 94,300 | 1.46% | 5,442 | 0.80% |
| **total** | 6,437,104 | 100.00% | 682,075 | 100.00% |
| **Source:Garcia Guadilla, 1998, p. 60** | | | | |

*The different functions of higher education*

The previous discussion shows that a proper understanding of the evolution, transformation and possible policies for higher education requires the combination of two approaches, one related to the links between higher education and the job markets, the other taking into account its cultural, institutional and inter-generational dimensions. Economists like to distinguish between the "private" and the "social" dimensions of higher education. According to this view, the private benefits of education are primarily the increase in wages associated with higher education. The social benefits of education are any "externalities" associated with the acquisition of university education. The assumption is that these external benefits are related to the ability of countries to innovate, or adapt and adopt innovations from leader countries. A well-functioning education system should effectively fulfill both needs: educate more workers who will have higher productivity (and earn higher wages), and function as an integral part of an innovation system. As argued earlier, higher education should also provide society with the social skills and values that are indispensable for building the basis for cooperation, social solidarity and trust, without which modern economies cannot function.[14]

These different functions of higher education appear in what is described in a recent OECD publication as two kinds of "political discourse" in higher education, one stressing its relevance to the market place, another its broader role, described (rather inappropriately) as a concern with "the advancement of knowledge".[15] These

[14] See, in this regard, Francis Fukuyama's analysis of the German apprenticeship system for technical education. While recognizing that this system may not be sufficient to create the skills needed for knowledge-intensive industries such as telecommunications, semiconductors, computers and biotechnology, he says that "the issue, however, is not whether the apprenticeship system will be the appropriate institutional mechanism for training in the next century. The German training system is of interest because it constitutes a bridge to sociability in the German workplace". Fukuyama 1995, p. 242. See also, for a broad discussion referred to the South African context, Jonathan 2001.

[15] Organization for Economic Co-operation and Development - OECD 1999

two views correspond to different historical and cultural traditions, and need to be taken in account whenever policies for higher education are discussed and put forward. The OECD study states that these two views are converging, and that modern higher education institutions should be able both to respond to the market demands and to the broader roles of the fields of culture, science, and critical thinking.

**Table 9 – Political discourses in higher education: utility in the market and the advancement of knowledge**

**Two kinds of political discourse: utility in the market and the advancement of knowledge**

Diverse, sometimes conflicting, viewpoints about the orientations and directions of policy for the first years of tertiary education emerged in the country visits and feature in the contemporary literature. The basic and very general orientation in all countries is that of public authorities interpreting society's interests in a broad and balanced way, systematically addressing demand and treating tertiary education as an investment in the future. Two other positions were also frequently advanced. The first, held by many academics, is that tertiary education, based on the disciplines of knowledge, ideally requires a measure of distance, a kind of separation even from other mainstreams (sometimes termed ''the mainstream'') of society. This gives rise to claims about a quite distinctive, sometimes an essentialist mission which distinguishes universities in particular from other kinds of institutions but touches some others as well. The two key concepts are research-based teaching, or teaching in a research environment and institutional autonomy often linked with intellectual freedom. Hence the purpose of the institution is the pursuit, advancement and diffusion of knowledge respecting its disciplinary structures. The second view is that tertiary education needs to become much more responsive to and related with ''the market'', to introduce modern management practices many of them pioneered in business, to lay greater emphasis on immediately useful or applicable knowledge and to construct its mission, organization, curriculum and pedagogy accordingly.

The differences are not simply those between older universities and newer ones, between the university and the non-university sectors. Indeed, these two orientations coexist certainly within the university sector and to some extent across all of tertiary education, and within single institutions.

OECD, *Redefining Tertiary Education*, 1998, p 44.

The opposition between "market" and "knowledge", or culture, is just one among several polarities that have been present in higher education institutions and systems since their inception, in modern form, in the early 19th century – public or private, laic or religious, general or specialized, professional or scientific[16]. Rather than dilemmas to be solved, these polarities reflect the diversity of goals, cultures and interests that have always coexisted within higher education in most countries, sometimes in tension, but often in peaceful coexistence.

[16] Although some universities date back to the Middle Ages, there is some consensus that modern higher education institutions start with the German, French and the renewed British universities around that time. See Ben-David 1977, and Clark 1995.

Historically, the term "university", or university education, was instrumental in conveying the notion that, in spite of the differences, these institutions had a common goal and purpose, which was to educate for the learned professions, and to be guardians of high culture, including the empirical sciences. These institutions shared their small size and the relatively homogeneous nature of their students, children of the learned elites of their societies. In contemporary societies, terms like "higher education" or "tertiary education" are used instead of "university", to account for the fact that the universities in the traditional sense are just one part of a much broader educational sector. In most countries, there are different types of institutions, funded differently, and catering to different segments of the population. This differentiation is not just a matter of sources of funding and institutional settings, like the traditional distinction between public and private universities; it responds also to different demands from the labor market, to historically different institutional arrangements, and to the characteristics of the different population groups now looking for some kind of post-secondary education.

It is possible to identify several functions performed by higher education institutions in modern societies, each of them appropriate to different types of students, and requiring specific institutions.[17] They include the education of social and political elites; specialized education for the learned professions; technical education for specialized work; education for scientific and technological research; and general education for social and business-related activities. *Education for the elites* is more a question of selectivity than of specific contents: it can be an education in engineering at the *École Polytechnique* in France, in history at Oxford or Cambridge University, in business at Harvard, or in any field at the University of Tokyo or Beijing University. Education for the *"learned professions"* – usually medicine and law, but in some countries, also theology and engineering – is more than learning specific technical contents, since it includes also socialization in the traditions, culture and values of specific professional bodies. *Technical education* is more narrow, specialized, and usually carries less benefits and social prestige. In the past, *education for scientific and technological research* used to be a simple outgrowth of professional and elite education; today, it has become a specialized activity, patterned along the American graduate schools. Finally, *general education*, which in the past used to be considered as a preparatory stage for professional education, is becoming an end on itself. In the United States, it is the "undergraduate" education, which does not provide professional degrees. In Latin America and most of Europe, where all higher education course programs lead to some kind of graduation, fields such as administration, the social sciences and law, which are the largest almost everywhere, perform this function[18].

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[17] For Latin America, see Schwartzman 1996b. See also Inter-American Development Bank 1997; and Castro, Levy, and Inter-American Development Bank 2000, for a slightly different typology.

[18] It is not correct, therefore, to refer to the first degrees provided by Latin American universities – "licenciaturas", or "bacharelados" in Brazil – as "undergraduate" degrees in the American sense. American-type graduate programs – master and doctoral programs – are usually called "post-graduate" in the region.

One could expect that, on time, homogeneous higher education systems would evolve into more complex, differentiated and pluralist ones. Differentiation became an important policy recommendation, as witnessed by the IADB policy paper, under the sensible assumption that these different roles and functions should be tackled one by one, without placing them on the same bag.[19] However, there is strong evidence, shown in this paper, of trends pressing in the opposite direction, characterizing a drift towards more homogeneous and undifferentiated higher education systems. The abolition of the old "binary system" in Britain several years ago, ending the historical differences between universities and the polytechnic institutes, was a milestone of this trend, which seems to be still going on.[20]

## III - The evolution of higher education in Latin America

*Expansion of demand and institutional differentiation*

Demand for higher education is only partially and indirectly determined by the changing requirements of the labor market. One can expect that prospective students will give preference to fields and careers which are perceived as providing better chances for higher salaries and prestigious occupations. Actual decisions, however, depend also on the information they can get; on the projections they make about the job market in the long run; and, crucially, on the access they may have to different choices, given their educational background, the availability of course programs, the entrance barriers, and their cost. If higher education is free of cost, and the student do not have a better social and professional alternative, he will enter the university and hope to learn on his way about his professional possibilities.

The expansion of higher education in Latin America in the second half of the 20th century was associated with broad expectations that jobs would be created to accommodate a growing number of graduates moving up the social ladder, and being absorbed by large and permissive higher education institutions.[21] These expectations were related to the intense processes of urbanization and industrialization that took place after the Second World War, reaching their limits, however, in the sixties and

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[19] See, more recently, Levy 2002.

[20] On this issue, Daniel Levy notes that, "despite the assurance of so many that we're getting more and more differentiation, let's be cautious and see; in fact, on the public data from a few key Latin American countries show a reversal of earlier such tendencies and an increase in the late 90s of the percentage of "university" institutions. That said, it is not that many years and the trend was otherwise before then. Mostly, an increased percentage of "university" institutions in the public sector is not necessarily evidence of increased frequency of the "university model." That gets to the point I had stressed about simply using the "university" label, for various reasons. How much that also involves trying to copy the leading universities, let alone a model of what they should be, is something about which we don't know how much it's happening. Meanwhile, institutional differentiation does not necessarily slow (let alone get reversed) but rather it has its natural jazz dance step: it innovates to different forms of differentiation and lots of them are in private tertiary sector. In any case, it is fair to wonder how much Latin America may be at a stage somewhat like Western Europe when academic drift crushed some binary systems." (personal communication).

[21] Gil Antón 1996, p. 313-314; Fuentes Molinar 1989.

seventies. That these jobs did not materialize helps to explain much of the political turmoil that affected Latin American campuses in last decades.[22]

**Table 10 – The expansion of higher education in Mexico**

**The Expansion of Higher Education in Mexico**

According to Manuel Antón Gil, quoting Olac Funtes Molinar, two factors accounted for the expansion of higher education in Mexico. "First, old and new social groups – the latter generated in the context of the great transformations in the social structure in the decades following the 1940s – created a growing demand for higher education that, he emphasizes, was focused precisely on 'certificates which validate their possession'. Second, and complementary to this, the government was willing to satisfy this demand 'in the spontaneous way in which it appeared, that is to say, without limiting its size, regulating its policies, or modifying the academic organization characteristic of the traditional university'. (…) Thus, higher education in Mexico was conceived as a service to promote the *distribution* of knowledge rather than its generation".

Gil Antón 1996, p. 313-314; Fuentes Molinar 1989.

As higher education expands, it tends to differentiate, if not formally, at least in practice[23]. Three relatively independent sets of factors can explain this trend, after higher education reaches a certain size – say, 15% or so of the age cohort.[24] First, the job market for graduates gets more complex, absorbing persons with different levels and types of skills. Second, new kinds of students enter higher education – older, poorer, from less educated backgrounds. Third, new institutions appear, looking for special niches in the education market, and providing different kinds of education products to the students. These trends of growth and differentiation have been accompanied, in Latin America and elsewhere, by profound institutional transformations in the higher education institutions, which have to be understood if policy recommendations are expected to follow from the analysis of these trends; they have also been opposed, with costs and consequences that need to be better evaluated.

*The new students*

Fifty years ago, access to the few higher education institutions in Latin America was limited to the children of the richest and better educated in each country. Today, the usual image of the young student who graduates after several years of

[22] See for instance Lorey 1992. For the author, "although in the 1940s and 1950s the university systems played important roles in promoting social mobility, by the 1960s the number of professional jobs was much smaller than the number of university graduates. By the 1980s, the social role of the universities was severely limited by economic crisis brought on by a combination of dropping oil prices, debt, and government deficits. The major challenge currently facing Mexico and Venezuela in higher education policy is to restart economic growth to provide jobs for university graduates." (article's abstract).

[23] See, for Brazil, Schwartzman 2001.

[24] Trow 1972.

fulltime study and then looks for a job in his profession corresponds to only a segment of the growing number of graduates from higher education institutions. Growth in higher education was associated with the expansion of urban and middle class occupations, leading to a process of "structural mobility" which meant, in practice, that people from lower strata were recruited into these new slots. A rough indicator of the extension of mass higher education in the region is provided by the "gross enrollment rates" listed in Table 11.[25] Some countries, like Argentina, Peru, Chile and Uruguay, have already reached about 30% coverage, while others, like Brazil, Mexico and Colombia, show about half the coverage.

**Table 11 – Latin America, gross rates of enrollment in tertiary education 1990-1997**

| Latin America, gross rates of enrollment in terciary education, 1990-1997 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Country** | **1990** | **1991** | **1992** | **1993** | **1994** | **1995** | **1996** | **1997** |
| Argentina | .. | 38.1 | .. | .. | 36.2 | .. | .. | .. |
| Bolivia | 21.3 | 21.7 | .. | .. | .. | .. | .. | .. |
| Brazil | 11.2 | 11.2 | 10.9 | 11.1 | 11.3 | .. | 14.5 | .. |
| Chile | .. | 21.3 | 24.2 | 26.5 | 27.4 | 28.2 | 30.3 | 31.5 |
| Colombia | 13.4 | 14.0 | 14.6 | 14.7 | 15.4 | 15.5 | 16.7 | .. |
| Costa Rica | 26.9 | 27.6 | 29.4 | 29.9 | 30.3 | .. | .. | .. |
| Cuba | 20.9 | 19.8 | 18.1 | 16.7 | 13.9 | 12.7 | 12.4 | .. |
| Dominican Republic | .. | .. | .. | .. | .. | .. | 22.9 | .. |
| Ecuador | 20.0 | .. | .. | .. | .. | .. | .. | .. |
| El Salvador | 15.9 | 16.8 | 17.2 | 17.0 | 18.2 | 18.9 | 17.8 | .. |
| Guatemala | .. | .. | 8.3 | 8.1 | 8.4 | 8.5 | .. | .. |
| Haiti | .. | .. | .. | .. | .. | .. | .. | .. |
| Honduras | 8.9 | 8.9 | 9.2 | 9.0 | 10.0 | .. | .. | .. |
| Mexico | 14.5 | 14.1 | 13.6 | 13.9 | 14.3 | 15.3 | 16.0 | .. |
| Nicaragua | 8.2 | 8.1 | 8.9 | .. | .. | 11.5 | 11.5 | 11.8 |
| Panama | 21.5 | 23.4 | 25.3 | 27.3 | 27.2 | 30.0 | 31.5 | .. |
| Paraguay | 8.3 | .. | .. | 10.3 | 10.1 | 10.1 | 10.3 | .. |
| Peru | 30.4 | 32.0 | 31.5 | 28.0 | 26.8 | 27.1 | 25.7 | 25.8 |
| Uruguay | 29.9 | 30.1 | 27.2 | .. | .. | .. | 29.5 | .. |
| Venezuela, RB | 29.0 | 28.5 | .. | .. | .. | .. | .. | .. |
| Source: World Bank, World Development Indicators, 2001 | | | | | | | | |

The social characteristics of higher education students in the region in the eighties can be seen on Table 12[26], which is very suggestive, although the data are not strictly comparable among countries. Even elite institutions, such as the University of Campinas in Brazil, are differentiated in their student composition, in spite of the dominance of students coming from higher occupational and educational strata in this institution.[27]

[25] Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown – usually between 18 and 24 years of age.

[26] García Guadilla 1998

[27] Among the students entering the university in 1997, 10.4% had their fathers working in manual jobs, compared with 45.5% working in top management positions or in the liberal professions; and about 30% was already working. See Bittencourt, Laplane, and Morassuti 1997. For similar data for Universidad Central de Venezuela, see Cortázar 1994.

**Table 12 – Latin America, distribution of higher education students by socioeconomic levels**

| Latin America: distribution of higher education students by socioeconomic levels (percentages) - Several years, 1985-1994 | | | |
|---|---|---|---|
| **Country** | **High** | **Middle** | **Low** |
| Argentina (a) | 8.80 | 62.10 | 29.10 |
| Chile (b) | 30.20 | 58.80 | 11.00 |
| Peru (c) | 36.60 | 57.10 | 6.30 |
| Dominican Republic | 20.10 | 52.70 | 27.20 |
| Uruguay (d) | 34.40 | 44.50 | 21.10 |
| Venezuela | 11.80 | 60.50 | 27.70 |
| (a) only public universities, based on father's education | | | |
| (b) based on the family income level | | | |
| (c) Based on the National Survey of Living Standards, 1985-6 | | | |
| (d) Student census, 1988. | | | |
| Source: Carmen García Guadilla, 1998, p. 59 | | | |

However, there are indications that this process of social differentiation did not continue in the eighties and nineties, when growth and expansion of opportunities slowed down.[28] A comparison of data from the National Household Surveys of 1992 and 1999 for Brazil shows that growth in higher education was related to an increase in the proportion of students coming from the upper economic brackets, not a reduction (however, there were some improvements in the access of non-whites and women.)[29] This finding suggests that, although there was more access to higher education for all social groups, access increased more in the upper strata, where it had been and still is particularly low, in comparison with other countries. In consequence, in spite of large increases in enrollment, the students' social profile remained almost unchanged.

**Table 13 – Brazil, social characteristics of higher education students, 1992-1999**

| Brazil, social characteristics of higher education students, 1992-1999 | | |
|---|---|---|
| | 1992 | 1999 |
| Women | 53.70% | 57.14% |
| head of households | 11.49% | 16.23% |
| wives or husbands | 11.64% | 13.55% |
| sons or daughters | 64.68% | 63.80% |
| other relative in the household | 4.76% | 3.87% |
| white | 80.11% | 78.87% |
| mean age (years) | 25.21 | 25.28 |
| relative household income (*) | 289 | 283 |
| percentage coming from the top 10% | 45.60% | 47.80% |
| percentage coming from the lower 50% | 8.50% | 7.00% |
| total students | 1,433,205 | 2,525,185 |
| Source: Calculated from IBGE/PNAD 1992 and 1999 | | |
| (*) for national average = 100 | | |

A survey done in 1991 with students and alumni from the University of São Paulo – one of the largest and most prestigious universities in Brazil – allows us to see

[28]This process is analyzed in detail for Brazil in Pastore 1986 and Scalon 1999.

[29] For the way the comparison of household income was made, see Schwartzman 2002.

more in depth the different student profiles. Four groups were compared – engineers, physicists, pedagogues and social scientists – along a four-fold classification (two in the hard and two in the social sciences; two in the professions, and two more academic fields). Of these, only the engineers, professionals in the hard sciences, followed the traditional pattern: they graduated with 23 years of age, while the others graduated at around 26.[30] The engineers were young men working hard for their technical careers. The physicists were also men, but older, and without a clear professional perspective. The pedagogues where older women, already employed (presumably as schoolteachers) and looking for a degree to get a promotion and a salary rise. The social scientists came from higher social strata, and their higher education degree had little to do, directly, with their source of living.

**Table 14 – Brazil, characteristics of the alumni from the University of São Paulo**

| Brazil, Characteristics of the alumni from the University of São Paulo (*) | field | | | |
|---|---|---|---|---|
| | Engineering | Physics | Pedagogy | Social Sciences |
| mean age at graduation | 23.2 | 26.8 | 25.4 | 26.1 |
| both parents with higher education | 14.8% | 12.6% | 10.8% | 22.7% |
| men | 93.9% | 76.4% | 3.2% | 32.3% |
| married when started studying | 2.7% | 15.6% | 17.8% | 23.4% |
| working when started studying | 14.6% | 40.2% | 75.2% | 53.0% |
| current job related to field | 52.6% | 36.4% | 61.7% | 15.5% |
| (*) graduated between 1979 and 1979 | | | | |
| source: Schwartzman, 1992 | | | | |

A detailed analysis of the skills required for their jobs identified five sets of abilities: namely, competence for decision-making, management, general culture, autonomy, technical competence, and entrepreneurship. Decision-making was mostly required from men working in smaller firms; management and inter-personal competencies were more required from women in public service or large corporations; general culture was a more typical requirement for people coming from more educated families and working in large companies and in government; autonomy was more required from elder people working in large corporations and government; technical competence was required from men in the hard sciences, working in large firms; finally, entrepreneurship was most required from engineers and physicists with graduate and post-graduate education.[31]

Technical competence, in short, was only one of several abilities required to some professionals, and only in large firms. General, non-technical skills were in much higher demand. This finding can be generalized to the whole region. Throughout Latin America, higher education qualifications of different kinds were associated with higher salaries, low unemployment and more job stability, making it rational for the population to work for it, and making it rational for institutions not to expand too much the supply of technical education.

[30] Schwartzman 1992.

[31] See, for an economic assessment of how different industries value different kinds of skills, Robbins and Minowa 1996.

*The transformations of traditional Latin American universities*

The old universities and professional schools, established in the early 19th century, could not possibly handle the growing and more complex demand coming from society. Since the mid 20th Century, the traditional setting was transformed beyond recognition, while a whole new set of institutions, some public, but mostly private, were created.

Latin American higher education institutions were established, as a rule, in the early 19th century, by the independent states created after the demise of the Portuguese and Spanish empires. In some countries, there were old universities established by the Catholic Church as early as the 16th century, which had to adapt or compete for space in the new circumstances. These new or renewed institutions followed what became known as the "Napoleonic" model of professional schools, and gradually evolved to incorporate other elements of modern higher education systems, such as graduate education, research, vocational and general education. In the Napoleonic model, there is no undergraduate education, like in the English or American "college" system.[32] The main academic units are the professional schools, or "faculties", of law, engineering and medicine, and other created later at their image, such as dentistry, architecture and economics. These faculties are entitled by the national governments to grant professional degrees, which are legally binding and entitle their holders to practice their professions and receive other benefits established by law.[33] As institutions endowed with a public mandate and supported with public resources, their autonomy was limited, with governments keeping the responsibility for authorizing or not the creation of new institutions; of establishing the contents of what the students should learn; the rules and regulations for hiring, paying and hiring staff; and the numbers and procedures for student admission, promotion and graduation. [34]

Throughout the years, this basic model was changed and adapted in each country by different influences and circumstances: the presence of a growing private sector; the influence of professional corporations; the mobilization of students; the changing demand for higher education; and international influences of all kinds. The notion that Latin American countries have, or should have, a homogeneous university system, ruled according to some ideal model of academic excellence, is still part of the rhetoric and even the legal texts in many places[35]. In practice, higher education

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[32] Both in Spanish and Portuguese, the term "colegio" refers to secondary education.

[33] The word "faculty" refers to this entitlement, and is not used, in Latin countries, to refer to the higher education academic staff, as in the US or England.

[34] See, for an overview, Schwartzman 1996a.

[35] Article 207 of the Brazilian 1988 Constitution still says that universities are autonomous institutions in matters of didactics and science, administration and management of their financial resources and assets, and should obey the principle of inseparability between teaching, research and extension work ("As universidades gozam de autonomia didático-científica, administrativa e de gestão financeira e patrimonial, e obedecerão ao princípio de indissociabilidade entre ensino, pesquisa e extensão."

everywhere has undergone a "silent revolution"[36] that made it much more complex and diversified than what is usually admitted. The description provided by Olac Fuentes Molinar for the expansion of higher education in Mexico applies to the region as a whole: national coverage, with marked regional inequalities; transformation of the social composition of the student population, with loss of its elitist character; qualitative differences with a tendency to fragmentation; conservation of traditional academic structures; diversification of educational options, with a predominance of those included in the service sector; concentration on funding from the central government; development of the academic job market, with a significant professional sector; increase in the organizational complexity and influence of administrative bodies.

The most visible trend was the creation of a large and, in some countries, a predominant private sector. Around 1950, there were about 75 universities in Latin America, most of them public or official; in the nineties, there were 319 public and 493 private universities, plus 4.626 non-university higher education institutions.[37]

*The new academic profession*

Less visible were the transformations that took place within the institutions. The traditional Latin American universities were, for most part, places for selection and admittance of students to the learned professions, through socialization in the professional cultures. The professors were distinguished members of their professions – lawyers, judges, medical doctors, engineers – who taught as a matter of prestige and professional responsibility, and did not depend on their teaching salaries to live. The best or better-related students would get practical training while working with their mentors in their offices and hospital wards, or inherit the clients of their father or family business. To run a university was a simple matter. Lecturers had to be assigned to classes; a timetable had to be set; buildings had to be opened, cleaned and closed at specific times; and a registry had to be kept, about who was admitted, their grades and diploma. Established textbooks were adopted year after year, which the students had to read and, if possible, learn by heart. Most of the energy was spent on decisions about who should be invited or admitted to teach, the recruitment of students, eventual changes and adaptations in the curricula, and the procedures for exams. In such a system, the University Rector, if he existed, had a ceremonial role, with little actual interference with the daily activities of their institutions.

Contemporary universities, in contrast, are complex institutions. Now, most of the professors are full-time academics, even if they keep some private practice as a side activity. This requires much larger budgets, office space, laboratories, libraries, and provisions for health care and retirement benefits. In the fifties and sixties, most large universities in Latin America built their campi, often with support from the Inter-American Development Bank, and these new installations required investments, maintenance, student housing and transportation. Research, which seldom existed, or

[36] Schwartzman 2001

[37] García Guadilla 1998, appendix 2, table 6, p. 264.

was restricted to the medical schools, became a requirement, adding to the need for equipment and complex administrative and accounting procedures to handle research grants. New departments, institutes, and vice-rectorships were added to the old flowcharts, which were limited to the traditional faculties and a ceremonial rector. It became very difficult to run these institutions, as in the past, through collegial decisions and a tiny and unqualified staff.

Not all universities responded to these new requirements the same way. The most serious barrier, which few countries were able to overcome, was the establishment of a body of full-time staff. The huge differences in expenditures per student among countries express their relative stages in this process. Brazil has, by far, the largest investment per student in the whole region, which is partially explained by the relatively small coverage of its public higher education system (Table 15 and Table 16).

**Table 15 – Expenditures in higher education public institutions, selected Latin American countries.**

**Latin America, Public expenditures in higher education, selected countries, 1994**

| Country | year | total expenditures in US$ | enrollment in public institutions | unit costs | as percentage of GNP |
|---|---|---|---|---|---|
| Argentina | 1994 | 1,651,000,000 | 840,241 | 1,965 | 0.58 |
| Brasil | 1994 | 3,999,695,465 | 690,432 | 5,793 | 1.25 |
| Chile | 1994 | 281,162,313 | 151,570 | 1,855 | 0.51 |
| Colombia | 1994 | 461,500,000 | 201,232 | 2,293 | 0.86 |
| Mexico | 1993 | 800,000,000 | 975,100 | 820 | 0.40 |
| Peru | 1993 | 144,576,163 | 412,069 | 351 | 0.35 |
| Uruguay | 1995 | 118,000,000 | 70,324 | 1,678 | 0.69 |
| Venezuela | 1994 | 1,091,981,747 | 387,161 | 2,820 | 1.18 |

Source: adapted from Guadilla, 1998, table 28, p. 286.

**Table 16 - Expenditures in higher education public institutions, selected countries and years**

**Expenditures per student in higher education, public institutions, selected countries and years (US$)**

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|
| Chile | 1,834.08 | 2,081.23 | 2,171.64 | 2,350.25 | 2,200.00 | 2,086.48 | 2,031.47 |
| Peru (university) | 721.00 | | | 967.00 | | 999.00 | |
| Peru (tertiary, non-university) | 171.00 | | | 237.00 | | 283.00 | |
| Brasil | | 9,066.29 | 10,038.65 | 11,458.43 | 12,134.68 | 13,220.44 | |

Sources: estimations given by experts in the countries, based on official information.

Institutionally, the transformation of traditional faculties into modern universities had at least two major consequences. The first is that higher education institutions became part of the civil service, subject in principle to the same administrative rules as other branches of public administration. This was compensated by a long-established tradition of institutional autonomy, dating back to the "Reform movement of the 1910's[38], leading to peculiar arrangements in which governments remained responsible for maintaining the institutions and establishing very broad guidelines for personnel, purchases and accounting, while the universities made all

[38] See for instance Slodky 1988.

the decisions on how to use those resources. In most countries, university rectors were and still are elected by the universities' collegial entities, often with the participation of students and administrative personnel. This situation turned autonomy into a two-sided system of unaccountability – the universities did not have to care for their costs and efficiency, and governments did not have to deal with the substantive issues related to the long-term social functions of higher education. This situation generated tensions, especially acute when universities were taken up by political parties, or became strongholds of revolutionary students[39]. In the sixties and seventies, confrontation between universities and governments flared up in many countries, and still occur, with the teachers' unions as the main activists. In the meantime, national coordinating bodies started to appear, hoping function as buffers between government and the institutions, and to regulate the contents of course programs and careers, to establish rules for the creation of new institutions, to introduce some rationality in the allocation of resources, and to create some mechanism for assessment of institutions and course programs.[40]

The second major consequence was the creation of a new social actor in higher education, the universities' professorate, known in Latin America as "university professors", and considered, often misleadingly, as belonging to a new "academic profession". The notion that there is a new "academic profession", different from the learned professions that are associated with the traditional schools of medicine, law and a few others, and sharing a common set of professional values and epistemological outlook, is well established in the literature on higher education[41], but does not apply easily to Latin America. The Carnegie Foundation carried out an international survey of the academic profession for the Advancement of Learning in 1992 and 1993, and some of its most suggestive results can be seen in Table 17[42].

[39] Marsiske 1999. See also Portantiero 1978.

[40] See, for an overview, Silvio 1991; for Brazil, Velloso 1991

[41] Altbach and Slaughter 1980; Boyer, Altbach, and Whitelaw 1994; Clark and Rockefeller Foundation 1987. See, for Chile, Schiefelbein 1996; and for México, Gil Antón and Equipo Interinstitucional de Investigadores sobre los Académicos Mexicanos 1994 and Gil Antón 1996.

[42] Altbach and Lewis 1996.

**Table 17 – Some characteristics of the academic profession in selected countries**

| Some characteristics of the academic profession in selected countries | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Brazil | Chile | England | Germany | Mexico | Sweden | United States |
| The degree to which your affiliation with your academic discipline is important to you (% answering "very important") | 95 | 87 | 64 | 62 | 71 | 55 | 77 |
| The degree to which your affiliation with this institution is important to you (% answering "very important") | 76 | 65 | 18 | 8 | 56 | 19 | 36 |
| Regarding your preferences, do your interests lie primarily in teaching on in research? (% answering research preference) | 39 | 33 | 55 | 66 | 35 | 67 | 37 |
| In my department it is difficult for a person to achieve tenure if he or she does not publish (% that agree) | 25 | 33 | -- | 78 | 28 | 58 | 75 |
| Academics are among the most influential opinion leaders in my country (% that agree) | 39 | 16 | 11 | 15 | 30 | 30 | 21 |
| Respect for academics is declining (% that agree) | 78 | 51 | 73 | 59 | 56 | 43 | 64 |
| Source: Extracted from several tables in Altbach and Lewis 1996 | | | | | | | |

This table shows how in some countries, especially in Europe, professors see themselves as belonging to a community structured around the values of research, and have a professional identity that is independent from the institution in which they happen to work. In Latin America, in contrast, research is secondary for most academics, while their affiliation with a specific institution and their discipline of origin are paramount. At the same time, Latin American academics see themselves as influential intellectuals, and complain that respect for academics is declining (being joined, on this item, by their colleagues in England and the United States). One implication of these findings is the clear contradiction between the stated nature of Latin American universities, as research-geared institutions, and their professional staff. More significantly, it points to the need to understand the attitudes and behavior of this staff as something very different from what one would expect from a research-oriented academic community.

An analysis of the Brazilian data led to a clear typology of the professorate, which can be applied also to other countries.[43] *Type I* is the traditional professor, distinguished in his profession and teaching, usually part-time, in the schools of law, medicine, engineering or dentistry. In Brazilian higher education, this traditional type was dealt a severe blow by the elimination of university chairs in 1968 and is being overtaken by the other types of professors emerging more recently. *Type II* comprises the younger professors, very often men, who are dedicated to their academic careers. They work full time at a good public university, publish regularly, and hold a doctoral degree; they are a minority, but are the closest to the ideal type of an "academic professional'. *Type III* encompasses the professors, very often women, in the humanities and education, who have stable and full-time jobs in public institutions, but do not have the resources or the opportunities to reach the standards of professional achievement of type II academics. She would hold a master degree, often from a second-rank university, and would be an active member of the teachers' union.[44] *Type IV* consists of the professors who teach undergraduates in private

[43] Schwartzman and Balbachevsky 1996, p. 269-272.

[44] "In this group of professors, one can find some of the central dilemmas that are common to all processes of professionalization: the conflict between the ideals of the collectivist trade unions and the individualistic liberal professions; the opposition between the values of personal achievement and those of the professional community; and, consequently, the spaces that are open or closed for intellectual growth, the development of competence and the strengthening of social responsibilities." (Schwartzman and Balbachevsky 1996, p. 271). Hebe Vessuri estimates that "aproximadamente un

institutions, without any kind of job stability. The usual image is a professor spending long ours in the classroom in order to earn a living, without the deeper commitment to an institution or identification with academic work.

This combination of complex, and often very large, autonomous university institutions; a professorate organized in unions and with limited commitments to academic values; and governments with little power or motivation to interfere in the universities, provides the framework to understand the way public higher institutions responded, or failed to respond, to the growing pressures from increased demand for education and the new requirements from the economy.

*Growth and differentiation in the private sector*

The first Latin American universities were Catholic institutions, in a time when there were almost no boundaries between State and Church. With independence, the old Catholic institutions had to share space with new, laic institutions, and turned "private", or entered in some kind of compromise with the new regime. Daniel C. Levy has suggested a typology of three "waves" of private higher education in Latin America, starting with the old Catholic universities, continuing with a number of specialized elite institutions, in the fifties and sixties, and concluding with the large number of "demand-absorbing" institutions in the seventies and later years.[45] Private institutions from the first and second wave tended to be non-profit institutions, occupying specialized niches; institutions of the third wave were created to compensate for the failings of the public sector, and tend to be for profit, even if disguised as philanthropic institutions when the local legislation requires it.

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tercio de los docents del sistema de edudación superior de la region tiene como función principal la docencia más o menos masificada, actúa más como funcionarios públicos que como académicos y se comporta colectivamente como grupo de presión sindical o gremial, para mejorar su status, sus ingresos o participación en el gobierno universitaria. Su relación con el segmento de profesores activos en el sistema nacional de investigación suele ser conflictiva" Vessuri 1998, p. 20.

[45] Levy 1986.

**Table 18 – Development of private higher education in Latin America, 1985-1995**[46]

| Development of Private Education in Latin America, 1985-1995 | | | | | |
|---|---|---|---|---|---|
| | % of private enrollment | | | | |
| **year** | **65%-40%** | **40%-30%** | **3o%-20%** | **20%-10%** | **less than 10%** |
| **1985** | Brasil<br>Colombia<br>Dom. Republic | Chile<br>El Salvador<br>Peru | Argentina<br>Guatemala<br>Paraguay | Costa Rica<br>Ecuador<br>Honduras<br>Mexico<br>Nicaragua<br>Venezuela | Bolivia<br>Panama<br>Uruguay<br>Cuba |
| **1994** | Brasil<br>Colombia<br>Chile<br>Dom. Republic<br>El Salvador<br>Paraguay | Nicaragua<br>Peru<br>Venezuela | Costa Rica<br>Ecuador<br>Argentina<br>Guatemala<br>Mexico | Honduras | Bolivia<br>Panama<br>Uruguay<br>Cuba |
| Source: Guadilla, 1998, p. 42 | | | | | |

The space for private higher education is very different in countries like Mexico and Argentina, where, historically, public institutions did not place many restrictions in the admission of students, from Chile, Colombia and Brazil, where the public sector remained limited to students who could pass often-difficult entrance examinations. In the former countries, quality of public higher education suffered, and elite private institutions could charge relatively high tuition for qualified students from richer strata. In the latter, private institutions provided mostly low-cost education for students from poorer backgrounds who could not qualify for public education, or pay for elite, private alternatives. To this classification of private institutions in two types, "elite" and "demand absorbing," used among others by Balán and Fanelli[47], Castro and Navarro add the existence of a small group of selected research think tanks, which "have built an admirable niche (…) for missions that are, at the same time, socially useful and academically relevant".[48]

Castro and Navarro challenge the common notion that the second tier institutions do not add significant value to their students, because of their small investments and the low educational background of their students. They note that the fact that many graduates from these schools do no find jobs corresponding to their professional degrees is to be expected:

> This occupational drift is by no means a dysfunction or a distortion in markets or education. It is what happens in all mature economies, where a large proportion of students in higher education end up in these loosely defined occupations, regardless of the diplomas they hold. The fundamental difference is that, in Anglo-Saxon countries,

[46] García Guadilla 1998.

[47] Balán and García de Fanelli 1993.

[48] Castro and Navarro 1999. See, for these institutions, Brunner 1985

graduates of the so-called liberal arts schools are not expected to find jobs corresponding to their diplomas". [49]

These schools perform important functions, since they add knowledge and information to students coming from very limited backgrounds, and provide them with credentials that may open new opportunities or improve their standing in their jobs. However, they are not truly liberal arts institutions, the course programs are often badly taught, and their students feel frustrated because they cannot get to the professions they were hoping to enter.

Castro and Navarro call attention to a specific segment of this second tier, the technical schools. They say that these are the least esteemed segment of higher education, often related to a "postsecondary" limbo, and perceived as the last choice for the student who cannot get into any other type of institution. However, the mere fact that they exist and grow demonstrates that they perform an important function, and should be object of more attention and concern.

In many Latin American countries, higher education policies and regulations are often defined by academics in public institutions, who tend to look at the private sector with prejudice, as low quality institutions selling dubious degrees for profit, cheating their students and creating disloyal competition to the established professions. However, the sheer fact of their existence and growth shows that they perform functions to which that the public system cannot respond. Private higher education is here to stay, and their existence raises several important policy issues to be considered: the needs and limits for public regulation and public financing, issues of ownership and profit, academic standards, differentiation, autonomy, and internationalization.[50]

*The new challenges: access, finance, equity, governance and control*

The changes described in this section - the transition from elite to mass higher education, the growing complexity of higher education institutions, their growing cost, and the growing differentiation of the student population - created new challenges to higher education institutions, which different countries have tried to handle in different ways. These challenges include the establishment of new policies for admission and access of students; mechanisms to assure that institutions have the resources they need, and use them wisely; ways of dealing with equity and institutional differentiation; and incentives to make the institutions to provide the kind of education and competence their countries need.

The first challenge is how to regulate admission and access to different universities and careers. One option, adopted by Mexico, Argentina, Peru and other countries, was to open public universities to all who qualified. In Mexico, public universities created their own upper secondary courses, and students graduating from

[49] Castro and Navarro 1999, p. 57.

[50] Some of these issues are raised in the introduction of Altbach 1999.

those schools can enter higher education without any limitation. One consequence was that national universities, such as in Mexico and Argentina, became extremely large, with hundreds of thousands of students. Only a fraction of those admitted, however, ever complete their degrees. This option has led to the creation of a space for private, high quality institutions, particularly in areas more closely related to market opportunities; and to a trend, among the richest families, to send their children to study abroad.

The other option, adopted more typically by Brazil and Chile, was to restrict access to public higher education, through the establishment of *numerus clausus* and some kind of entrance examination. This policy has allowed many public institutions to retain and even improve their quality, at the price of keeping large number of students from being admitted. One solution, attempted more forcefully by Chile, was to create a lower tier of public and private post-secondary institutions, providing vocational and short-term technical courses. The other, adopted by Brazil and also Chile and Colombia, was to allow the private sector to grow and capture this demand. Since the students who cannot get into the public institutions are usually older, and from poorer and less educated backgrounds, the courses provided by private institutions tend to be cheaper, given in the evenings, and mostly in the "soft" fields.

The second challenge is how to finance both the institutions and the students. Traditionally, public institutions are financed from public budgets, and students are admitted free, while private institutions do not get public support, and students pay tuition. The resources governments grant to public universities are decided politically, and change incrementally, according to the demands from the institutions and the budgetary restrictions of governments. In some countries, like Chile, traditional private institutions also get public support, while, in Brazil, they can only get support for research and graduate education, or as limited loans provided to their students. The combination of mass higher education and a new "academic profession" has led, historically, to large increases in the cost of higher education, and, in the eighties and nineties, several countries reduced or tried to limit the resources growing to universities, generating serious conflicts with the teacher's and employees' unions, and a flight of the staff to other sources of income.

One partial solution to the finance squeeze in the public sector would be to charge tuition to the students who can pay, and to provide loans to those who cannot. The introduction of tuition in public institutions, however, is an explosive political issue in many countries. No Brazilian government has attempted to do it, in spite of the well known inequity of free higher education in Brazilian public universities; and Mexico has gone recently through a very long and debilitating student strike because of the attempt to introduce some minor charges to the students of UNAM. In Chile, tuition was introduced by the military regime, but was kept by the democratic governments later on.

Student tuition, however, cannot pay for the costs of a complex university, with full-time staff, graduate education and research. Higher education institutions need public support. However, the way public resources are provided, and they way they are spent, should be changed very significantly. It is now recognized that public subsidies should be associated to products and merit. There are several attempts to make these links, providing some extra resources to institutions that can attract the

best students, as in Chile, or paying more to teachers who spend more time with their students. In most countries, research money is handled outside the education authorities, and goes to public and private institutions according to their academic merit.

The issues of expansion and tuition touch the broader question of equity. Working students, and those coming from poorer backgrounds, not only cannot pay, but also need financial support to be able to study. Given the high private benefits of university education, it seems clear that the best solution to achieve equity would be to charge tuition in public universities, and to provide students with study loans, to be paid after graduation. Different countries are starting with student loan programs. Resources, however, are not the only issue related to equity. In Brazil, public universities are under pressure from governments and segments of public opinion to provide more evening courses for working students, and to establish quotas for students of black origin or coming from public secondary schools. On the other hand, some new private institutions are emerging, to cater to elite students unwilling to put up with the limitations and periodic instability of public institutions. Therefore, differentiation is likely to continue, providing different opportunities but also access restrictions for different social groups.

An important, but neglected source of inequity in Latin American higher education is the assumption that all degree courses are identical, in spite of the large differences among students and institutions that exist in real life. If anyone can enter, say, a medical school, but the course requirements are very strict, many students will be expelled before getting their degrees, nominally for under-achievement, but in practice for the lack of appropriate background and resources for full time study. Centralized quality assessment procedures, like the National Exam for graduating students being implemented in Brazil, can exacerbate this problem, by enforcing single standards on all institutions, and stigmatizing those catering to less qualified students.

Instead of treating different persons equally, and therefore increasing inequity, it would be better to treat them unequally, providing education that takes into account the different conditions of the student body. Institutional differentiation exists to some degree in all Latin American countries, with the development of a "lower tier" of technical schools, professional institutes and teacher education establishments, and "higher tier" of graduate and research departments and institutions. However, and contrary to expectations, the "lower tier" has not developed as one would expect, and there are clear evidence that the "university" segment is growing in Brazil, Chile, Peru and other countries (Brazil is an extreme case, since there is practically no post-secondary institutions in the country). There are different explanations for this drift towards universities. One is that students reject short-term courses, because this would limit their access to full university credentials, and the benefits associated with them. Mechanisms to allow passages and transfers from lower to upper level course programs could help to reduce this effect. The other is the opposition of the "learned professions" (medicine, law, engineering) to the creation of professions that could limit their job markets – optometrists, clinical nurses, topographers, and so forth. Another difficulty is the absence of a tradition of partnerships between education institutions and private companies for the provision of on-the-job education, which is related to the very absence of a well-developed industrial sector. In these

circumstances, technical and professional schools tend to provide low quality education, rather than the practical training and preparation they would be expected to do.

We will look at these issues as we proceed with the analysis of different countries, and will come back to them again at the end. Here, we would like to point out that, in principle, to deal with these issues, governments should have appropriate instruments to steer higher education institutions to fulfill their roles, and institutions should have the necessary autonomy to respond to the appropriate incentives and stimulus. This is not, however, what happens. Higher education, in all countries, is an intensively disputed arena of different interests and preferences – students and their families, governments, unions, civil servants, political parties, business groups, and the mass media. Decisions in such contexts are slow, incremental, and subject to constant challenge and revision. Public universities are run through complex collegial procedures, and are limited in what they can do by civil service rules and regulations. At the other extreme, private institutions usually lack internal institutionalization. They tend to be run as private firms, and respond quickly to market changes and opportunities. At the same time, they seldom have the technical and human resources to respond to the more complex challenges of mass and elite education.

## IV - Responsiveness of national higher education systems to presumed needs: the evidence.

Given this general background, what can be said about the way higher education evolved in the last decade or so, and responded to the presumed needs for socially relevant skills, in a selected group of countries? How have the institutions developed, in response to the challenges of mass higher education, constraints in public resource, and changes in the labor market? How effective are they, in the different segments and educational tracks – public, private, university, non-university – to admit the students that apply to them, and provide them with quality education? Are the students queuing at the entrance of higher education institutions, unable to be admitted for some kind of reason? In the following, we will look more closely at five experiences, two countries that took the path of expanding public higher education to its limits – Mexico and Peru – and three others that did not expand that much, allowing the market of private education to bloom – Chile, Colombia and Brazil. The selection of these countries was based, in part, on the availability of data, and on an effort to include different and contrasting national experiences. For each country, and depending on the availability of information, we give a short historical background; look at the characteristics and evolution of its job market; present data on which kinds of professionals higher education is providing (a measure of "external efficiency"); see whether the system is segmenting, both in terms of public and private institutions and institutions of different kinds; look at the demand of students for higher education, and the system's ability to respond to them (an indication of "internal efficiency"); and see if there are indications about the quality the education provided. We conclude each section with a summary of policy issues being discussed or contemplated in each country.

## *Mexico*

### *Historical development*

For half a century, higher education grew continuously in Mexico, thanks to a policy of open admissions to the National University and the creation of new public institutions more recently. Throughout the 20th century, Mexico experienced a long period of authoritarian rule, and in 1968 a violent confrontation in Mexico City left hundreds of students dead. Since then, the Mexican regime began a period of "shared development" in which the universities were granted more autonomy and the government tried to attend its growing demands for resources and places[51]. In the late seventies, the government prepared a National Plan for Higher Education that was, however, short-lived. The 1980s was a period of economic crisis and efforts to introduce more rationality in the system, with proposals for differentiation, cost recovery, and expansion of the private sector. In the nineties, concerns about the costs and the assessment of quality and relevance of higher education in Mexico intensified. This is how Rollin Kent summarizes the previous years:

> The two decades that established what is known today as the Mexican system of higher education were characterized by an unstable and turbulent economic environment, full of uncertainties. The only rule to deal with financial instability was to exert political pressure on the public coffers. The consequence was the inability to develop long-term strategies for the system. The lack of continuity; the lack of transparency in the rules of the game; the economic ups and downs; all this led to a climate of political confrontation that marked the management, systems of authority and the very social fabric of public institutions. Unregulated (or politically regulated) expansion did not induce the universities to improve their management practices. For most, it was enough to respond to the demand with their traditional administrative cultures and the occasional advice of *amateur* experts. This led to the accumulation of overtaxed, inefficient and politically fragmented administrative structures, described by Brunner as "anarchic bureaucratization".[52]

### *Growth and Segmentation*

Higher education has been growing very fast in Mexico, without the periods of stagnation experienced in recent years by other countries, such as Brazil in the 1980s. Most of this expansion has been in public institutions, particularly in the technological institutes; however, the private segment started to growth in the seventies, and now reaches about 30% of the students.[53]

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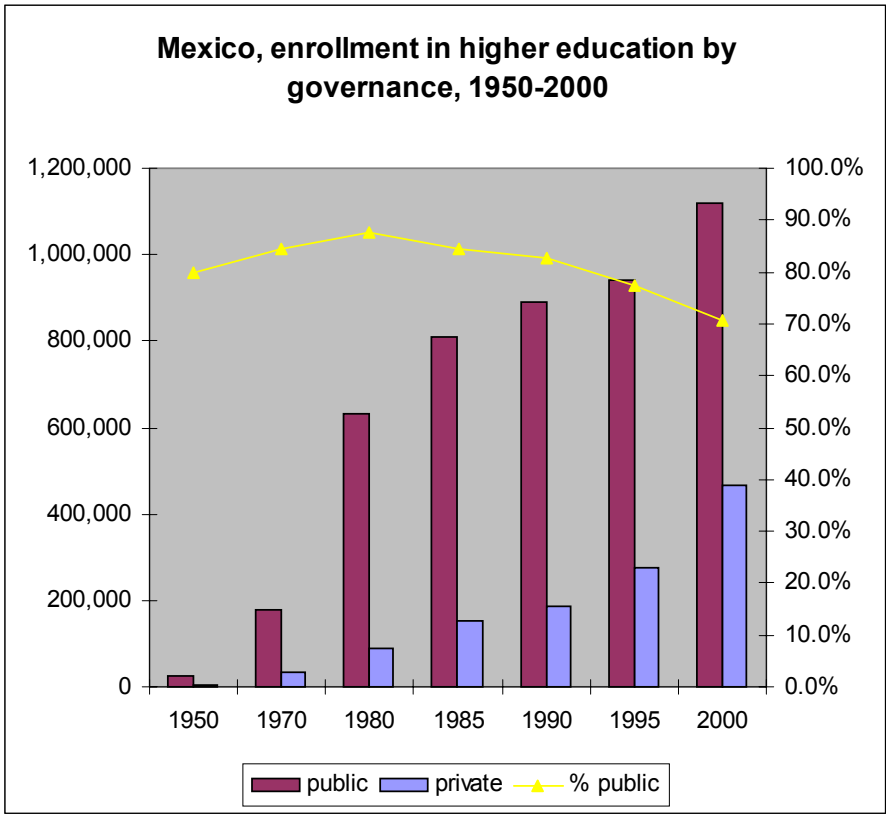
[51] This expression is used by Diaz Barriga 1999 to characterize the 1970-1981 of his chronology of higher education in Mexico. For a political analysis of the relationships between government and university in Mexico, see Levy 1980.

[52] Kent Serna 1999, p. 238 (my translation). See also Brunner 1991 and Kent Serna 1993.

[53] Valenti Nigrini and del Castillo 2000

**Table 19 - Mexico, enrollment in higher education by governance, 1950-2000**[54]




There are six types of higher education institutions in Mexico today, organized along a continuum of academic complexity: technical, "licenciatura" (BA); master degree programs; doctoral programs; and combined master and doctoral programs.[55] Table 20 gives the number of institutions for each type in the private and public sectors, while Table 23 provides information on the numbers of students enrolled in these institutions. Seventy or more percent of the students entering administration, communications (media, journalism), marketing, systems management and similar fields go to private institutions; on the other hand, eighty percent or more of the students entering in engineering, medicine, veterinary, nursery and sociology go to public institutions.[56]

Most students are in university-level courses, with teacher education being done in specialized institutions, and there are also small vocational and graduate

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[54] Diaz Barriga 1999 and Mexico, ANUIES - Asociación Nacional de Universidades e Instituciones de Nivel Superior 2001b.

[55] This is the official typology established by Mexico's National Association of Universities and Institutions of Higher Education - ANUIES in 1999.

[56]For an analysis of enrollment trends in Mexico, see Valenti Nigrini and del Castillo 2000 and Valenti Nigrini and et. al. 2000 The authors call attention to the growth of technological careers in public institutes, and to the stagnation or reduction of science-based careers, in areas such as biology, geology or geophysics, a trend which seems to be shared by other countries in the region.

segments. Graduate education is concentrated in the MA level, in the social professions and education. The private sector does not seem to be limited to the lower segment of the system: it works mostly at the "licenciatura" level, with a significant presence in the teacher education segment, and some small inroads in graduate education. Another significant feature of institutional differentiation has been the expansion of higher education away from Mexico City. In 1970, 52.5% of the higher education students were in the Federal District; the figure for 1999 was 21.7%. This trend meant a reduction of the relative importance of UNAM, which remained, however, Mexico's main higher education institution.

**Table 20 – Mexico, higher education institutions by type and affiliation**

| Mexico, higher education institutions by type and affiliation | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Type of institution | | | | | | |
| Institutions of higher education | IDUT<br>0<br>technical education | IDEL<br>I<br>BA level (licenciaturas) | IDLM<br>II<br>Master Programs | IDILM<br>III<br>Licenciatura and Master | IDILD<br>IV<br>Doctoral Programs | IIDP<br>V<br>Doctoral and masters progams | TOTAL |
| **Public institutions** | | | | | | | |
| Universities, Institutes of Technology and others | 0 | 310 | 37 | 19 | 24 | 14 | 404 |
| Normal (teacher education) | 0 | 220 | 0 | 0 | 0 | 0 | 220 |
| Technological universities | 36 | 0 | 0 | 0 | 0 | 0 | 36 |
| SUBTOTAL: | 36 | 530 | 37 | 19 | 24 | 14 | 660 |
| **Private institutions** | | | | | | | |
| Universities and others | 0 | 666 | 54 | 9 | 3 | 4 | 736 |
| Normal (teacher education) | 0 | 137 | 0 | 0 | 0 | 0 | 137 |
| SUBTOTAL: | 0 | 803 | 54 | 9 | 3 | 4 | 873 |
| TOTAL: | 36 | 1,333 | 91 | 28 | 27 | 18 | 1,533 |

Source: ANUIES, 2001

## *The labor market for graduates*

Table 21 gives the main figures on the occupation and income of higher education graduates[57] in Mexico, as well as its changes in the 1990s. In this period, the number of persons entering the market with higher education degrees in Mexico increased by about 70%, being absorbed mostly by the social professions – services, education and government. Education, business commerce and government make up more than 50% of the jobs. Manufacture employed 14% of the active population in 1990, going down to 12% ten years later. In ten years, the only occupations that increased their shares were education, services and communications. The largest increases in relative income were in government jobs, including education, and in small fields - agriculture, mining, and communications; the largest losses were for commerce and services for the private sector. For the 1996-2000 period, the salaries of engineers did not change, and increased very substantially for scientists and

[57] Meaning "licenciados".

medical doctors (Table 22) – another confirmation that the market increased its appreciation for highly skilled persons, but for only a small number of them.[58]

[58] Not by chance, the largest group of persons with postgraduate degrees in Mexico are the medical doctors – 67,000 out of 225,000 thousand persons in 2000. These degrees are mostly specializations, not master or doctoral qualifications. The number of post-graduate engineers was very small – about 14 thousand (data from INEGI, Encuesta Nacional de Empleo, 2000).

**Table 21 – Mexico, occupation and income of persons with higher education, 1991-2000**

| Mexico, occupation and income of persons with higher education, 1991-2000 | | | | | |
|---|---|---|---|---|---|
| **a) occupation** | 1991 | 1996 | 2000 | growth 1991-2000 | variation in share, 1991-2000 |
| Agriculture | 48,566 | 48,294 | 47,082 | -3.1% | -1.1% |
| Mining, energy | 52,948 | 47,262 | 57,295 | 8.2% | -1.0% |
| manufacture | 283,089 | 308,278 | 404,081 | 42.7% | -2.4% |
| construction | 91,968 | 103,150 | 109,898 | 19.5% | -1.4% |
| trade and other services | 306,456 | 454,172 | 550,080 | 79.5% | 0.7% |
| transportation, communication | 55,749 | 90,660 | 117,156 | 110.1% | 0.6% |
| Financial services | 81,457 | 118,562 | 106,143 | 30.3% | -1.0% |
| professional and technical services | 198,391 | 347,269 | 372,956 | 88.0% | 1.0% |
| Education services | 423,997 | 789,577 | 911,165 | 114.9% | 5.4% |
| health services | 211,388 | 300,498 | 332,820 | 57.4% | -0.8% |
| government | 238,348 | 352,734 | 409,632 | 71.9% | 0.0% |
| Total | 1,998,147 | 3,428,703 | 3,420,308 | 71.2% | |
| **b) mean income** | 1991 | 1996 | 2000 | | variation, 1991-2000 |
| Agriculture | 1,282.18 | 1,763.90 | 2,101.42 | | 63.9% |
| Mining, energy | 2,206.85 | 2,127.21 | 2,956.87 | | 34.0% |
| manufacture | 2,785.10 | 2,342.53 | 2,844.51 | | 2.1% |
| construction | 2,715.21 | 2,610.71 | 2,685.94 | | -1.1% |
| trade and other services | 2,598.21 | 1,872.56 | 2,118.38 | | -18.5% |
| transportation, communication | 2,166.51 | 2,149.65 | 2,921.01 | | 34.8% |
| Financial services | 3,527.45 | 2,664.44 | 3,250.82 | | -7.8% |
| professional and technical services | 2,825.14 | 2,010.69 | 2,617.01 | | -7.4% |
| Education services | 1,340.22 | 1,366.43 | 1,666.95 | | 24.4% |
| health services | 1,839.10 | 1,582.89 | 2,179.50 | | 18.5% |
| government | 1,629.72 | 1,845.49 | 2,255.83 | | 38.4% |
| Total | 2,176.30 | 1,847.98 | 2,264.37 | | 4.0% |
| (a) constant values in Mexico pesos for 1993 | | | | | |
| **Source: INEGI, STPS, Encuestas Nacionales de Empleo 1991, 1996 y 2000** | | | | | |

**Table 22 – Mexico: increases in income for holders of undergraduate and graduate degrees**

| Mexico: mean income for holders if undergraduate and graduate degrees, 1996-2000 | | | | | | |
|---|---|---|---|---|---|---|
| | income (b) | | | | | |
| carrera | 1996 | | 2000 | | increase | |
| | Licenciatura | Maestría | Licenciatura | Maestría | Licenciatura | Maestría |
| Architecture | 1,861.53 | 4,019.92 | 2,402.83 | 2,214.34 | 29.1% | -44.9% |
| Natural Sciences | 1,558.87 | 2,159.06 | 1,677.35 | 2,701.73 | 7.6% | 25.1% |
| Agriculture | 1,665.10 | 4,048.33 | 2,282.55 | 3,328.72 | 37.1% | -17.8% |
| Medicine and Dentistry | 1,466.07 | 2,280.92 | 2,140.71 | 3,380.01 | 46.0% | 48.2% |
| Health Sciences | 1,024.97 | 1,683.95 | 1,489.00 | 1,464.02 | 45.3% | -13.1% |
| Human and behavioral sciences | 1,402.85 | 1,624.54 | 1,485.56 | 2,369.81 | 5.9% | 45.9% |
| Social sciences | 1,640.18 | 3,704.00 | 1,885.21 | 3,505.12 | 14.9% | -5.4% |
| Exact sciences | 1,560.16 | 1,869.53 | 2,290.32 | 3,128.75 | 46.8% | 67.4% |
| Law | 1,920.16 | 2,744.83 | 2,404.51 | 2,675.00 | 25.2% | -2.5% |
| Arts | 1,401.41 | 1,603.10 | 2,607.61 | 1,503.22 | 86.1% | -6.2% |
| Economics | 2,045.88 | 3,566.92 | 4,290.07 | 5,218.31 | 109.7% | 46.3% |
| Administration, accounting | 1,958.61 | 3,644.33 | 2,359.76 | 4,819.54 | 20.5% | 32.2% |
| Education | 1,237.68 | 1,990.26 | 1,461.70 | 2,098.10 | 18.1% | 5.4% |
| Engineering | 2,303.30 | 3,796.13 | 2,646.52 | 3,815.42 | 14.9% | 0.5% |
| Total | 1,772.84 | 2,692.25 | 2,178.74 | 3,333.99 | 22.9% | 23.8% |
| (a) constant values of 1993 | | | | | | |
| Source: INEGI, STPS, Encuestas Nacionales de Empleo 1996 y 2000 | | | | | | |

*Supply and demand*

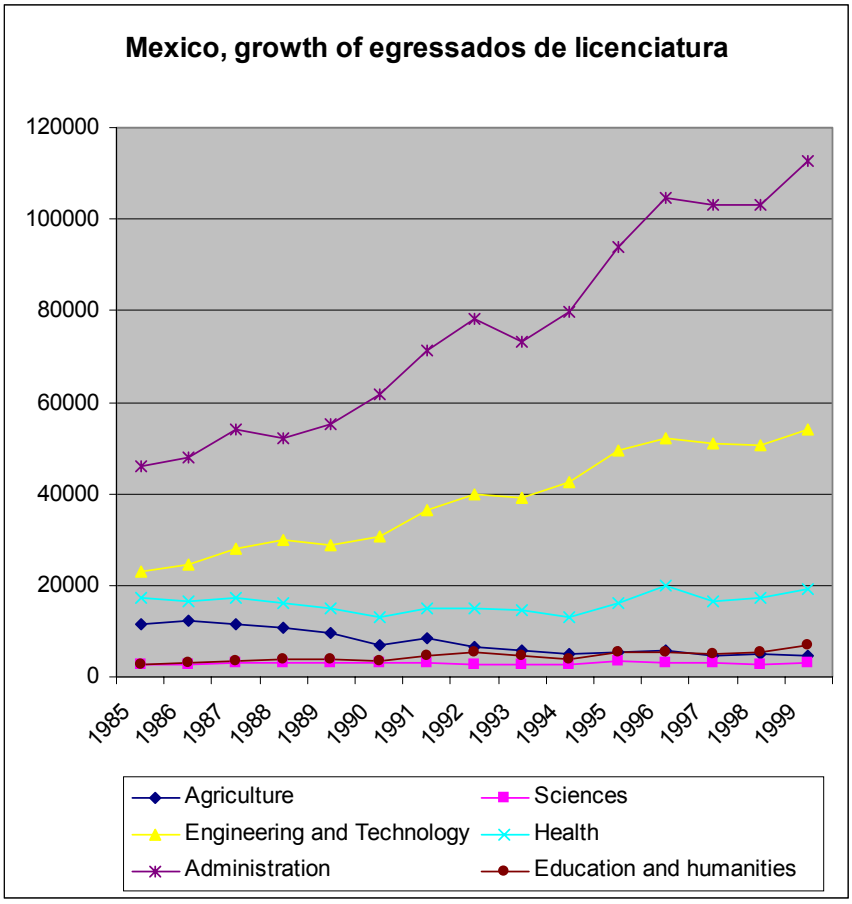
Table 23 gives the distribution of students by fields of knowledge, and Table 24 shows the main trends in the decade. The distribution of students among the different disciplines and segments seems coherent with the distribution of work posts in the labor market. Half the students are in the social and administrative professions (law, administration, accounting), and about 15% in education. Engineering is also a large group, with a third of its students in computers and systems. These fields may seem too large, given the limited and shrinking size of the industrial and construction sectors, but many engineering students end up working in services, communication, and management. The trend, as depicted in Table 24, has been for a very intense growth in the social professions, followed by growth in engineering, with other areas staying more or less the same throughout the nineties.

**Table 23 – Mexico, enrollment in higher education by fields of knowledge and segments**

| Mexico, enrollment in higher education, by fields of knowledge and segment | | | | | |
|---|---|---|---|---|---|
| | | Technogical ("técnico superior") | Undergraduate ("licenciatura") | teaching preparation ("normal") | graduate ("postgrado") |
| Agriculture | | 607 | 40,335 | | 2,462 |
| Health | | 2,954 | 142,667 | | 19,105 |
| Natural and exact sciences | | 3 | 32,694 | | 5,934 |
| Social and administrative sciences | | 14,287 | 789,172 | | 54,554 |
| Education and humanities | | 3,874 | 66,073 | 215,506 | 19,832 |
| Engineering and technology | | 22,025 | 514,463 | | 16,212 |
| Total | | 43,750 | 1,585,404 | 215,506 | 118,099 |
| **main fields:** | | | | | |
| Health | Medicine | | 69,464 | | |
| Social and administraive siences | Law | | 189,834 | | |
| | Administration | | 162,699 | | |
| | Accounting | | 151,695 | | |
| | Psychology | | 47,166 | | |
| Education and Humanities | Teaching | | 38,973 | | |
| Engineering and Technology | Computing and systems | | 150,947 | | |
| | Architecture | | 50,241 | | |
| | Electric and electronic engineering | | 58,404 | | |
| | Industrial engineering | | 73,918 | | |
| | Mechanic and electric engineering | | 50,746 | | |

Source: ANUIES, 2000

**Table 24 – Mexico, growth of *egressados* de licenciatura**




*Efficiency*

To see how efficiently Mexican universities respond to the student demand, we can look at the flow of students through higher education, as described in Table 25 and

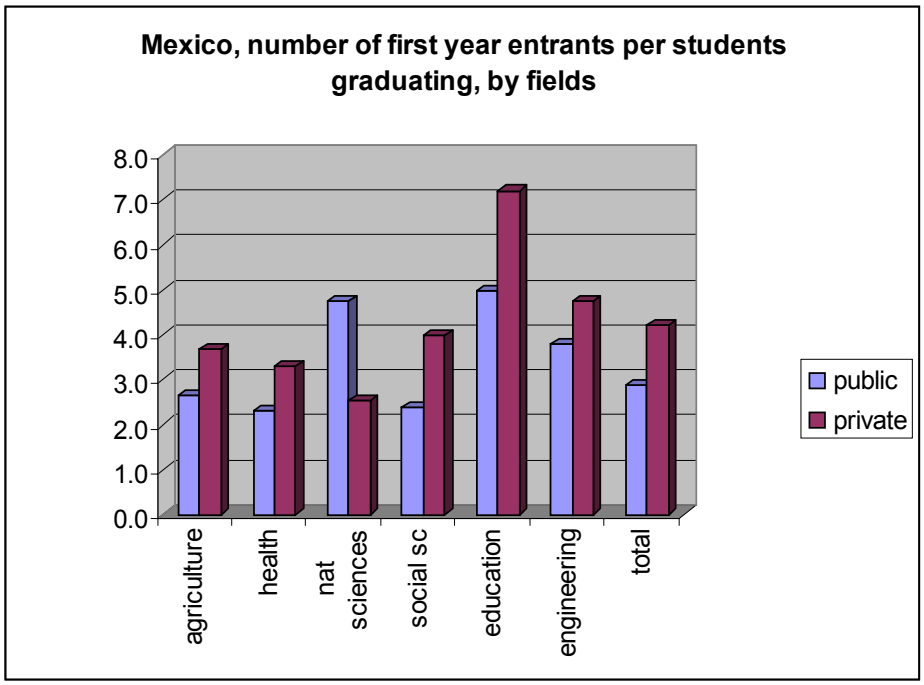
Table 26. If the different areas were not growing, in an efficient system the number of students graduating every year would be the same as those entering for the first year. What we see, however, is that, on average, there are 3.2 entering students in Mexico for each graduate, more in the private than in the public sector (4.2 and 2.9). This proportion can be much higher in some fields, like education and technology in the public sector (technology in the private sector is more efficient, but is a very small sector). This problem is well known by Mexican educators, who have been struggling to find better indicators of what they call "terminal efficiency", and to explain their causes.[59]

[59] According to the policy document of ANUIES, "uno de los principales problemas del sistema de educación superior es el de los bajos índices de eficiencia terminal, tanto si se considera la tasa de egreso de licenciatura como la de titulación: la primera es actualmente del 69% en promedio y la segunda del 39%. (…) Cabe reconocer, sin embargo, que la fórmula de cálculo comúnmente utilizada (egreso o titulación en un año dado sobre el ingreso cinco o siete años antes, respectivamente) es imperfecta y no da cuenta de la complejidad del fenómeno. La eficiencia terminal real está sujeta a distintas variables aún insuficientemente analizadas como son, entre otras, las trayectorias escolares de los alumnos (repetición y reingreso), la inscripción real a un programa académico en una institución y la migración entre instituciones. La eficiencia terminal real es mayor que la aparente, pero se requiere ciertamente de mayor información de la que actualmente se dispone en el sistema de educación superior para hacer conclusiones mejor documentadas. Cabe señalar que en el estudio realizado por Roger Díaz de Cossío con información de la Dirección General de Profesiones de la SEP y de los Anuarios estadísticos de la ANUIES, se encuentra que, como un promedio nacional, "de 100 alumnos que ingresan a licenciatura, 60 terminan las materias del plan de estudios cinco años después y, de éstos, 20 se reciben. De los que se reciben, sólo el 10% lo hacen a edades de 24 o 25 años; los demás lo hacen entre los 27 y los 60 años". Mexico, ANUIES - Associación Nacional de Universidades e Instituciones de Nivel Superior 2001a, chapter 2.3.9; Díaz de Cossío 1998, p.8.

**Table 25 – Mexico, enrollment figures and rates, by fields and types of institution**

| Mexico, enrollment figures and rates, by fields and types of institutions | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | totals | | | rates of enrollment per graduates | | |
| Field | | public | private | total | public | private | total |
| Agricultural sciences | first year entrants | 10,156 | 454 | 10,610 | 2.6 | 3.7 | 2.7 |
| | enrollment | 38,623 | 1,712 | 40,335 | 10.1 | 13.8 | 10.2 |
| | concluding | 4,336 | 224 | 4,560 | 1.1 | 1.8 | 1.2 |
| | graduating | 3,841 | 124 | 3,965 | 1.0 | 1.0 | 1.0 |
| Health Sciences | first year entrants | 30,546 | 5,392 | 35,938 | 2.3 | 3.3 | 2.4 |
| | enrollment | 123,413 | 19,254 | 142,667 | 9.3 | 11.7 | 9.6 |
| | concluding | 16,821 | 2,394 | 19,215 | 1.3 | 1.5 | 1.3 |
| | graduating | 13,240 | 1,640 | 14,880 | 1.0 | 1.0 | 1.0 |
| Natural and Exact Scences | first year entrants | 9118 | 517 | 9635 | 4.7 | 2.5 | 4.5 |
| | enrollment | 30,900 | 1,798 | 32,698 | 16.0 | 8.8 | 15.4 |
| | concluding | 2,829 | 194 | 3,023 | 1.5 | 1.0 | 1.4 |
| | graduating | 1,926 | 204 | 2,130 | 1.0 | 1.0 | 1.0 |
| Social and administrative sciences | first year entrants | 110,176 | 89,104 | 199,280 | 2.4 | 4.0 | 2.9 |
| | enrollment | 484,764 | 304,408 | 789,172 | 10.4 | 13.6 | 11.5 |
| | concluding | 73,291 | 39,500 | 112,791 | 1.6 | 1.8 | 1.6 |
| | graduating | 46,526 | 22,327 | 68,853 | 1.0 | 1.0 | 1.0 |
| Education and humanities | first year entrants | 12,924 | 7,203 | 20,127 | 5.0 | 7.2 | 5.6 |
| | enrollment | 47,192 | 18,881 | 66,073 | 18.2 | 18.9 | 18.4 |
| | concluding | 5,114 | 1,651 | 6,765 | 2.0 | 1.7 | 1.9 |
| | graduating | 2,598 | 1,000 | 3,598 | 1.0 | 1.0 | 1.0 |
| Engineering and technology | first year entrants | 99,725 | 37,149 | 136,874 | 3.8 | 4.7 | 4.0 |
| | enrollment | 393,839 | 120,624 | 514,463 | 15.0 | 15.4 | 15.1 |
| | concluding | 41,333 | 12,732 | 54,065 | 1.6 | 1.6 | 1.6 |
| | graduating | 26,317 | 7,839 | 34,156 | 1.0 | 1.0 | 1.0 |
| Total | first year entrants | 272,645 | 139,819 | 412,464 | 2.9 | 4.2 | 3.2 |
| | enrollment | 1,118,731 | 466,677 | 1,585,408 | 11.8 | 14.1 | 12.4 |
| | concluding | 143,724 | 56,695 | 200,419 | 1.5 | 1.7 | 1.6 |
| | graduating | 94,448 | 33,134 | 127,582 | 1.0 | 1.0 | 1.0 |
| Source: ANUIES | | | | | | | |

**Table 26 – Mexico, number of first year entrants per students graduating, by fields and sector**




Queuing

Admission to universities in Mexico is usually decided when the student enter the upper secondary level ("bachillerato"), which is also provided by the main public universities. To enter this level, the only requirement for the student is to have completed the previous level of education. According to their achievement in an entrance examination, the student can go to the institution of their choice – but, in practice, he can always choose where to go. Once he completes the "*bachillerato*", then can enter higher education without any barrier (this procedure is called "*el paso*"). If there are places left in the university, there is a call for an exam.[60]

[60] There are many exceptions to this rule however, which applies to universities that have the upper secondary level. For instance, the Universidad Autonoma de Baja California (public) had 13,338 applications for 8,000 places in the year 2001, and only admitted 6,344 students. The Universidad Veracruzana (public) had 26,085 applicants in 1997, and only admitted half of them. The Universidad de Guadalajara (also public) had 32,508 applicants in the year 2000, and only admitted one third. Admission to some selective private institutions is also limited by entrance examinations and high tuition costs. Many private institutions, however, do not select their students in any significant way (Giovanna Valenti, personal communication).

**Table 27 – Mexico, enrollments and graduation by year, 1990-2000**

| Mexico enrollment and graduation, by year, 1990-2000 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | a - graduated from bachillerato | b -first year enrollment, total | c - total enrollment | d - total concluding | e -total graduating | e/b | e/c | e/d |
| 1990 | | 241,194 | 1,078,191 | 118,457 | 55,371 | 22.96% | 5.14% | 46.74% |
| 1991 | 438,266 | 247,627 | 1,091,324 | 139,031 | 69,781 | 28.18% | 6.39% | 50.19% |
| 1992 | 451,992 | 265,702 | 1,126,805 | 147,729 | 71,923 | 27.07% | 6.38% | 48.69% |
| 1993 | 451,703 | 262,641 | 1,141,568 | 140,256 | 83,412 | 31.76% | 7.31% | 59.47% |
| 1994 | 465,627 | 264,631 | 1,183,151 | 146,420 | 88,838 | 33.57% | 7.51% | 60.67% |
| 1995 | 490,235 | 276,838 | 1,217,431 | 173,693 | 98,669 | 35.64% | 8.10% | 56.81% |
| 1996 | 507,722 | 298,557 | 1,286,633 | 191,024 | 113,560 | 38.04% | 8.83% | 59.45% |
| 1997 | | 320,758 | 1,310,229 | 183,417 | 110,902 | 34.57% | 8.46% | 60.46% |
| 1998 | | 352,670 | 1,392,048 | 184,258 | 116,337 | 32.99% | 8.36% | 63.14% |
| 1999 | | 378,663 | 1,481,999 | 200,419 | 127,592 | 33.70% | 8.61% | 63.66% |
| 2000 | | 412,464 | 1,585,408 | | | | | |
| Source for enrollment in higher education: ANUIES, Estadisticas de Educación Superior, 2000 | | | | | | | | |

Table 27 shows the number of students completing their bachillerato and those entering higher education, for a selected period. We do not have a breakdown of first year enrollments by the way they were admitted, but we can assume that most students came directly through "*el paso*". The National University of Mexico, the largest in the country, with about 150 thousand students, opened up 7 thousand places for entrance through open examinations for 2002, a fraction of its yearly intake (Table 28). There were 48 thousand applicants, about 7 per place. The most disputed fields are the medical profession, computer-related engineering, law, psychology and accounting. This table does not mean that the applicants who do not pass are denied access to higher education. They may have come from other universities, or from other careers within UNAM; and they can enter less competitive fields.

Should the National University in Mexico invest in opening more places for medicine, dentistry, law and computer science, to respond to the demand? Such decision cannot be based solely on the number of applicants per existing slots. It should take into account the level of qualification of the candidates, the eventual costs for expansion in specific fields, the offerings of other institutions, and some projections of long-term needs. It might be more convenient to open more places in computer sciences, and less in psychology or law. However, it seems clear that the main problems Mexican higher education faces are not related to limited access, but to the enormous waste, and related costs, associated with the large number of students who fill the institutions' classrooms and never get their degrees.

**Table 28 – National University of Mexico, offer of places for undergraduate education, March 2002**

| National University of Mexico, offer of places for undergraduate education, March, 2002 | | | | |
|---|---|---|---|---|
| | **Places offered** | **applicants** | **selected** | **rate** |
| **selected careers** | | | | |
| Medical doctor | 285 | 6,141 | 297 | 20.7 |
| Engineering in computer sciences | 105 | 2,252 | 111 | 20.3 |
| Psychology | 135 | 3,585 | 241 | 14.9 |
| Computer sciences | 216 | 2,849 | 222 | 12.8 |
| Administration | 275 | 3,500 | 283 | 12.4 |
| International Relations | 130 | 1,519 | 137 | 11.1 |
| Law | 545 | 5,335 | 584 | 9.1 |
| Pedagogy | 150 | 1,395 | 165 | 8.5 |
| Dentistry | 290 | 2,179 | 293 | 7.4 |
| Accounting | 370 | 2,511 | 396 | 6.3 |
| Veterinary | 220 | 1,116 | 233 | 4.8 |
| Pharmacy | 200 | 1,032 | 226 | 4.6 |
| Actuarial sciences | 110 | 489 | 117 | 4.2 |
| Architecture | 320 | 1,185 | 352 | 3.4 |
| Social worl | 180 | 556 | 180 | 3.1 |
| Nursing | 260 | 549 | 179 | 3.1 |
| Sociology | 116 | 369 | 124 | 3.0 |
| Biology | 265 | 721 | 244 | 3.0 |
| Economics | 322 | 827 | 342 | 2.4 |
| Chemical engineering | 175 | 374 | 172 | 2.2 |
| Civil engineering | 266 | 465 | 225 | 2.1 |
| Mechanic and electric engineering | 301 | 399 | 226 | 1.8 |
| Applied mathematics and computers | 125 | 187 | 136 | 1.4 |
| **sum** | 5,361 | 39,535 | 5,485 | 7.2 |
| **others** | 1,539 | 8,575 | 1,515 | 5.7 |
| **TOTAL** | 6,900 | 48,110 | 7,000 | 6.9 |

*Policies for reform: noises and silences.*

In the nineties, Mexico started to work in the modernization of its higher education system. Kent lists the following areas of reform[61]:

- Institutional differentiation, with the creation of new types of institutions and changes in academic roles and values, in the areas of teaching and research;
- Change in the concept of university autonomy;
- Changes in open admission policies
- Changes in university government and management;
- Changes in financing mechanisms;
- Introduction of evaluation procedures for course programs and academics.

This list of issues and questions do not appear in a recent policy document prepared by ANUIES, the Mexican association of higher education institutions.[62] This

[61] Kent Serna 1999

[62] Mexico, ANUIES - Associación Nacional de Universidades e Instituciones de Nivel Superior 2001a.

document presents coherent arguments for the need to increase the role of higher education in Mexico in the forthcoming decades, and projects a pattern of continuous expansion of higher education for the future – including an increase of the proportion of the gross national income spent on higher education to the current 0.48% to 0.7% in 2006 and 2% in the year 2020, when Mexico is expected to have 48% of its 20-24 years population in higher education. For an external observer, it is clear that Mexican higher education cannot continue to expand without trying to deal with the problems listed by Kent, which would make it more efficient in the use of public resources, less wasteful, more responsive to demands, and more concerned with the quality of the education it provides. The fact that ANUIES is a federation of institutions may explain why its policy document does not deal with the more thorny issues related to the inefficiencies of Mexican higher education.

Assessment of academics and institutions was supposed to be the key policy instrument for higher education in recent years, but its implementation was very limited, and more related to inputs than to outcomes. In an overview of the policies for higher education in Mexico in the 1990s, Wietse de Vries notes that there are many noises regarding the growth of enrollment and the increase of inputs, but silence regarding outcomes.[63] He concludes his analysis with three critical considerations. First, there is no data to show whether the situation today is better than ten years ago, and no assessment of programs of incentives for the improvement of the academic staff. There has been some improvement in "terminal efficiency" (the proportion of students that complete their degrees), but not because of deliberate policies. There is no information on the students and their working opportunities, to assess the creation of new options and the emphasis on technical careers are in the right direction. Second, the policies became more traditional than in the past, based on the belief that the simple increase in inputs would produce better results, without the establishment of goals, a clear vision of the role of the state, and the place for the private sector in higher education. Third, the existing incentives are distributed through a continuous process of negotiation with interest groups and fragmentary decisions, without a coherent coordination and purpose, evidence that the ability of the public sector to implement a national policy remains very limited.

*Chile*

*Historical development*

In the 1980s, under authoritarian rule, Chile went through the most radical reform ever attempted in a national higher education system in the region, geared toward diversification, increase of private participation, and self-regulation. The main traits of the Chilean reform were the following:[64]

- Creation of a three-tier system (universities, professional institutes and centers for technical education), based on a hierarchy of degrees and duration of studies, with

[63] de Vries 2000

[64] Based on Brunner et al. 1995

universities having the monopoly of graduate education and education for the "learned professions".

- New, permissive legislation allowing for the creation of private institutions with very little or no regulation. Between 1980 and 1990, 40 new private universities, 78 private professional institutes, and 161 private centers for technical education were created.
- Forced reorganization of the two old public universities, leading to their subdivision into 16 new universities, including the pedagogical ones;
- Radical change in the financing mechanism for the universities. Three sources of resources were envisaged: direct subsidies, limited to the eight universities that existed before the reform (including the Catholic universities) and those derived from the reform of the old universities; indirect subsidies, to public and private institutions, based on the quality of their students, according to a national exam; and tuition, which was required in all institutions. Besides, the government created a system of student loans and a competitive fund for research, based on peer review. There was also legislation to stimulate private donations to university institutions. These measures, combined with a radical reduction of public expenditures in higher education (a 41% reduction between 1980 and 1990), led the institutions to search for other sources of income. In 1990, the universities received 34% of their resources from government, 22.2% from tuition, and the remaining from other sources.

*Growth and Segmentation*

In Chile, the distinction between public and private higher education is much less clear than in other countries in the region. Traditional private universities, like the Universidad Católica de Chile, get public support, while public institutions charge tuition. Even so, important differences between the public and the private sectors remain. Table 29 shows that, contrary to what could be expected, the professional and technical institutions lost their relative and even absolute sizes in the 1990s, while the university segment continued to grow.

**Table 29 – Chile, Enrollment in higher education by segments, 1983-2000**

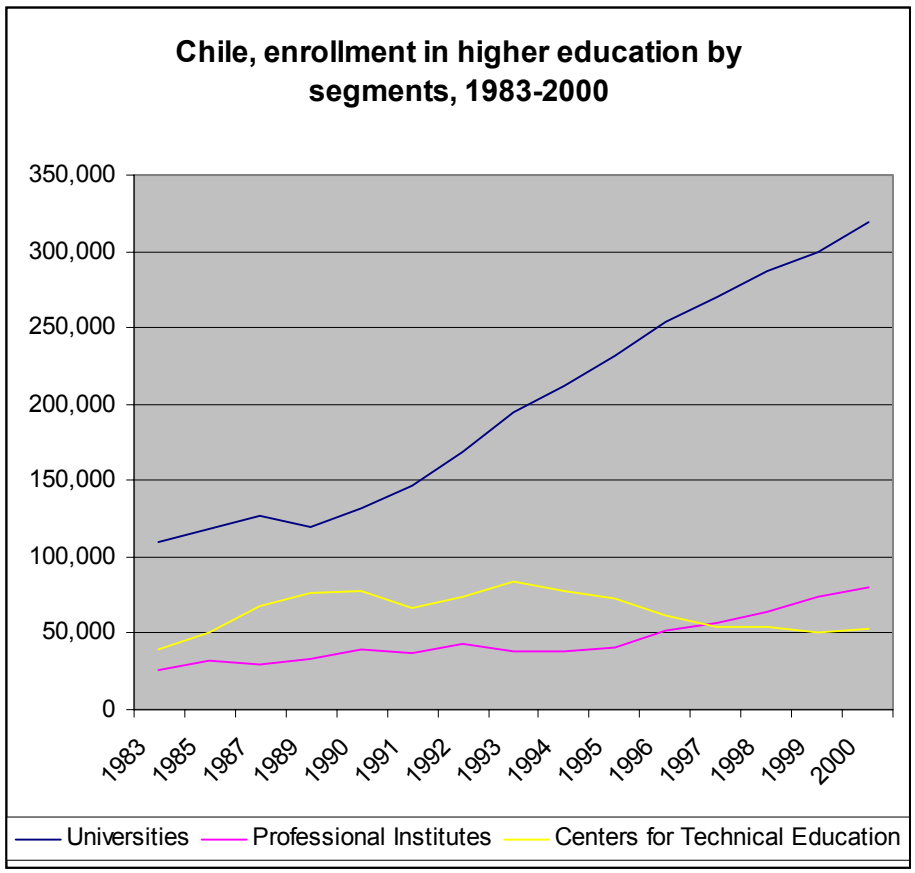



**Table 30 – Chile, enrollments in higher education by type of institution**

| Chile, Enrollments in Higher Education, by type of Institution (%) | | | | |
|---|---|---|---|---|
| | 1983 | 1990 | 1995 | 2000 |
| **Universities** | **62.46%** | **52.01%** | **66.32%** | **69.42%** |
| Traditional | 60.89% | 44.06% | 45.88% | 46.16% |
| Private | 1.57% | 7.95% | 20.44% | 23.26% |
| **Professional Institutes** | **14.59%** | **16.30%** | **12.14%** | **18.33%** |
| With public support | 10.24% | 2.64% | 0.00% | 0.00% |
| Without public support | 4.35% | 13.66% | 12.14% | 18.23% |
| **Centers for Technical Education** | **22.95%** | **31.69%** | **21.54%** | **12.24%** |
| Total | 172,995 | 245,408 | 337,604 | 435,830 |

*The labor market for graduates*

A picture of the job market in Chile is given Table 31, with information broken down by income levels. This distribution is very similar to those of other countries in the region – most jobs are in urban services, with agricultural jobs restricted to those at the lower income brackets. The distribution of activities by areas of activity is more or less the same at all income levels. At the highest quintile, presumably with the highest educational levels, there is an increase in the proportion

of persons working in finance activities and personal services, and a small decrease of those working in commerce and tourism.

**Table 31 – Chile, active population by areas of activity and income quintiles**

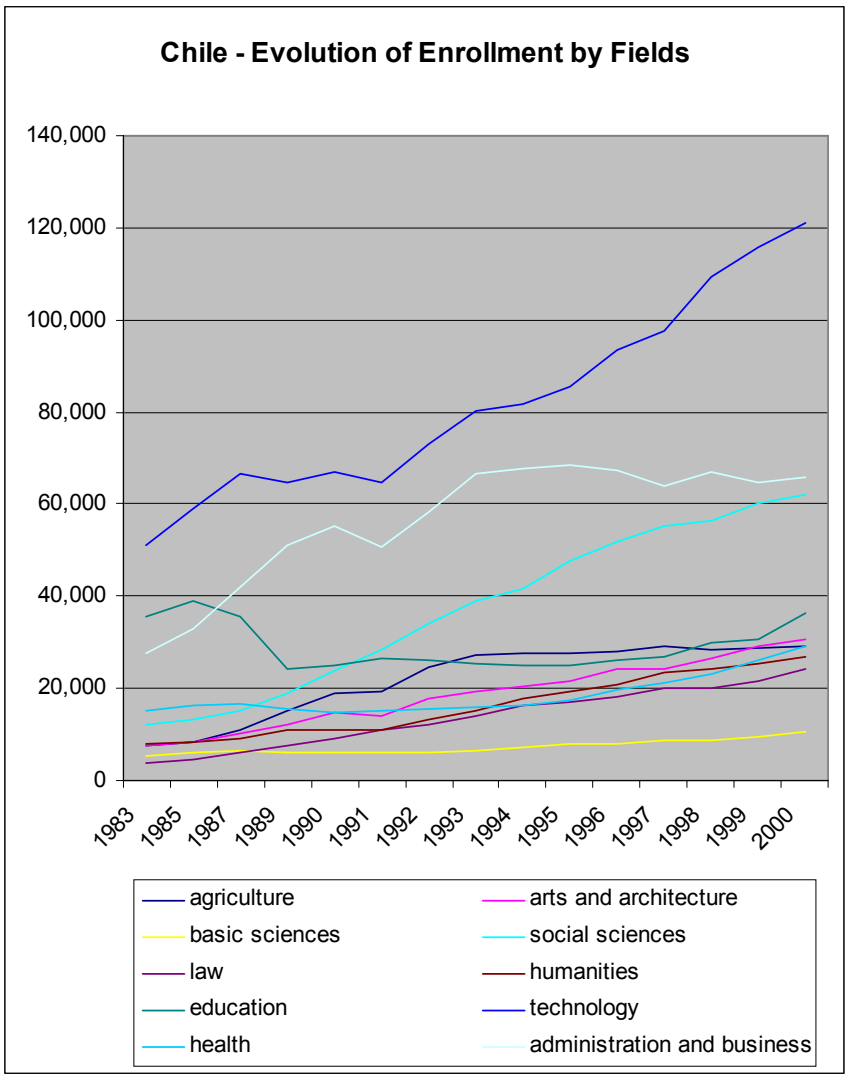
| Chile,active population, by areas of activity and income quintiles | | | | | | |
|---|---|---|---|---|---|---|
| | I | II | III | IV | V | Total |
| agriculture | 33.02 | 20.81 | 13.21 | 7.61 | 5.52 | 14.56 |
| mining | 0.90 | 1.09 | 1.59 | 1.91 | 2.31 | 1.63 |
| manufacture | 11.92 | 14.67 | 15.70 | 13.39 | 12.54 | 13.75 |
| energy and water | 0.48 | 0.65 | 0.67 | 1.17 | 1.23 | 0.87 |
| construction | 11.47 | 10.13 | 9.57 | 6.21 | 4.69 | 8.12 |
| commerce and tourism | 13.13 | 17.97 | 19.80 | 23.19 | 18.91 | 19.06 |
| transport, communications | 6.34 | 7.31 | 7.25 | 7.80 | 7.95 | 7.41 |
| financial services | 2.51 | 3.70 | 4.85 | 9.14 | 14.43 | 7.36 |
| social and personal services | 20.05 | 23.48 | 27.03 | 29.28 | 31.95 | 26.93 |
| other | 0.17 | 0.19 | 0.32 | 0.30 | 0.47 | 0.30 |
| **total** | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| number of persons | 756,653 | 1,070,793 | 1,163,574 | 1,202,474 | 1,187,554 | 5,381,048 |
| **Source: Chile, CASEN, 2000** | | | | | | |

*Supply and demand*

Table 32 allows us to see the changing relevance of the different areas of study in Chilean higher education throughout the years. "Technology" has always been the largest field, mostly as a technical and professional level, corresponding to what is known in the US as "vocational" careers. Education (teacher training), which used to take a large share of higher education in the 1980s, lost much of its previous significance. Law, the social sciences and the humanities were the fields that grew most, but starting from a very small base.

Table 33 shows how public and private institutions specialize in different fields of knowledge. In the private sector, social sciences, law, business and administration together account for about half of enrollments. In traditional universities, those areas take up less than 25%. Whereas in traditional universities, health, technology and the basic sciences account for around 45% of enrollments, they are slightly above 15% in private institutions. This shows that private universities are the ones that best adapt to the growing demands for social sciences, business administration and law.

**Table 32 – Chile, evolution of enrollment by fields, 1083-2000**




The Chilean data suggest that the creation of a differentiated three-tier system, for a while, led to the development of a very significant segment of vocational education, instead of a large segment of low quality law and administrative schools as in Brazil and other countries with more homogeneous institutions. However, on time, there was a drift towards higher education and the social professions. Together, today, technology, administration and business take up around 40 to 45% of Chile's higher education students.

**Table 33 – Chile, distribution of enrollments by fields and type of institution, 2000**

| Chile, distribution of enrollments by fields and type of institution, 2000 | | | | | |
|---|---|---|---|---|---|
| | universities | | professional institutes | Centers tec education | total |
| | public | private | | | |
| agriculture | 8.7% | 6.1% | 3.2% | 3.8% | 6.5% |
| arts and architecture | 5.2% | 8.9% | 10.4% | 4.4% | 6.9% |
| basic sciences | 4.7% | 0.9% | 0.4% | 0.5% | 2.6% |
| social sciences | 11.5% | 25.3% | 13.6% | 2.9% | 14.0% |
| law | 4.5% | 12.1% | 0.0% | 4.3% | 5.4% |
| humanities | 7.7% | 11.3% | 1.4% | 0.8% | 6.6% |
| education | 11.7% | 9.2% | 6.5% | 2.3% | 9.1% |
| technology | 29.3% | 12.1% | 38.9% | 29.3% | 27.1% |
| health | 10.4% | 2.6% | 0.0% | 9.9% | 6.7% |
| administration and business | 6.4% | 11.5% | 25.6% | 41.8% | 15.2% |
| Total | 215,284 | 103,805 | 79,904 | 53,354 | 452,347 |
| Fuente: Chile, Ministerio de Educación, División de Educación Superior | | | | | |

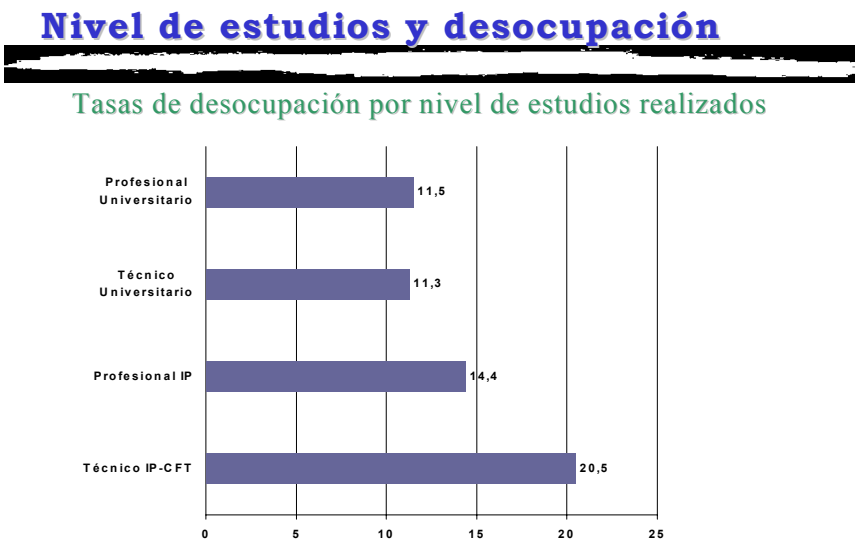
The Chilean Ministry of Education has created an observatory to follow the employment of higher education graduates, and Table 34 combines the information on student enrollment by fields of knowledge, its growth since 1983, and the salaries obtained by the graduates in the job market. We can see that the largest fields, social sciences and technology, continue to grow and are among the best paid, showing that the students behave rationally when they look for these fields.[65] The same study shows that unemployment among graduates from universities is significantly lower than for graduates from technical institutions (Table 35). Therefore, the movement away from technical schools and institutes toward university education is also a rational decision. However, it is a slow change, since the decision to study in a given field depends not only on the expectation of income, but also on the relative difficulty for access.

[65] Chile, Ministerio de Educación 2000.

**Table 34 – Chile, mean incomes and enrollment, by fields of knowledge**[66]

| Chile, mean Incomes and enrollment, by fields of knowledge | | | |
|---|---|---|---|
| Fields of Knowledge | income (a) | % enrollment (b) | increase in enrollment, 1983-2000 (c) |
| agriculture | 815.23 | 6.54% | 390.6% |
| arts and architecture | 561.98 | 6.87% | 414.1% |
| basic sciences | 562.04 | 2.56% | 202.9% |
| social sciences | 923.22 | 14.03% | 506.2% |
| law | 1,151.34 | 5.41% | 665.8% |
| humanities | 482.97 | 6.59% | 341.3% |
| education | 474.48 | 9.08% | 101.9% |
| technology | 991.64 | 27.06% | 238.0% |
| health | 829.23 | 6.71% | 192.8% |
| administration and business | 536.30 | 15.15% | 238.8% |
| correlation a.b | 0.30 | | |
| correlation a, c | 0.61 | | |
| correlation b, c | -0.16 | | |
| sources: (a) Mean montly income since 1995 in Chilean Pesos, converted to US dollars of 2000 (ex. Rate of 539,49). Telefone survey, Ministério de Educación, 2000 (b ) and (c) Ministério de Educación, www.mineduc.cl. | | | |

**Table 35 – Chile, levels of education and unemployment**




[66] "Increase of enrollments" refer to increase in absolute numbers between 1983 and 2000; see Table 32.

*Efficiency*

To enter higher education in Chile, one has to pay, and compete for a place in the most prestigious institutions and career fields. The costs may not be high by international standards, but may be so in relative terms; to compensate, there are significant subsidies and student loans for those in need.

**Table 36 – Chile, annual tuition costs of undergraduate education[67]**

| Chile, annual tuition costs of undergraduate education, 1999 | | | | | |
|---|---|---|---|---|---|
| | traditional universities | private universities | professional institutes | total | monthly income in US$ |
| Agriculture | 2,145 | 2,488 | 1,526 | 2,084 | 815.23 |
| Arts and architecture | 2,258 | 2,902 | 1,861 | 2,275 | 561.98 |
| Sciences | 1,952 | | 1,368 | 1,928 | 562.04 |
| Social Sciences | 2,073 | 2,586 | 1,581 | 2,140 | 923.22 |
| Law | 2,410 | 2,698 | | 2,610 | 1,151.34 |
| Humanities | 2,083 | 2,591 | 1,998 | 2,299 | 482.97 |
| Education | 1,458 | 1,882 | 1,318 | 1,513 | 474.48 |
| Technology | 2,151 | 2,580 | 1,428 | 1,871 | 991.64 |
| Health | 2,362 | 4,066 | | 2,546 | 829.23 |
| Administration and business | 1,771 | 1,922 | 1,397 | 1,577 | 536.30 |
| total | 1,845 | 2,261 | 1,400 | 1,792 | |
| correlation with income | 0.65 | 0.34 | -0.19 | | |
| Source: prepared with information from División de Educación Superior, Ministério de Educación. | | | | | |

There is closer association between the costs of traditional universities and the earnings in the labor market than in other types of institutions. For the professional institutes, the main explanation for the discrepancy is the relative high cost of education in the humanities and arts; for the private universities, the main distortion are the high costs of humanities and health. The availability of fellowships for teacher training in the humanities and arts, and the concentration of health education in the field of medicine may explain these differences.

A proper understanding of the impact of these costs has to be seen in terms of the subsidies and credit loans available to universities and students. Public money for higher education in Chile can come through different routes: direct subsidies, limited to the traditional universities (49.2%); indirect subsidies, linked to the ability of the institutions to attract students with high scores in the Aptitude Exam (PAA); a National Fund for Institutional Development, given to universities to support specific projects (12.9%); 25.5% as loans and fellowships to students. Besides, the legislation stimulates the private sector to donate to higher education institutions, and 29 million dollars were obtained this way in 1998. In 1998, 58% of the students enrolled in publicly financed universities (which includes both the traditional and the new ones, public and private) received some kind of financial help, reaching 57% of the weighted tuitions.[68] Therefore, there is no evidence that costs affect efficiency, in the

[67] For monthly income, see Table 34.

[68] Brunner 1999, based on data from the Chilean Ministry of Education.

sense that talents are lost because of lack of resources; or equity, in the sense that persons from lower social strata cannot access higher education. In Chile as in Latin America, most of the barriers to entrance in higher education are at the lower educational levels, in terms of unequal access to good quality basic and secondary education.

Another indication of the efficiency of Chilean higher education institutions is the proportion of places that are effectively occupied at a given moment. Table 37 shows a clear link between effective use of slots and the prestige associated with tradition and university status; in other words, and similarly to what happens in other countries, the new and private institutions are not proving to be more efficient in the use of their resources than the public ones.

**Table 37 – Chile, enrollment and efficiency in the use of available seats, by type of institution**

| Chile, enrollment and efficiency in the use of available seats, by type of institution, 2000 | | |
|---|---|---|
| Traditional, autonomous universities | 92.7% | 104,744 |
| Autonomous, derived universities | 90.3% | 85,202 |
| Private professional institutes | 80.8% | 59,790 |
| Private universities | 77.3% | 69,886 |
| Professional Institutes under accreditation | 71.3% | 3,857 |
| Universities under accreditation | 69.2% | 24,933 |
| Universities under examination | 67.5% | 6,738 |
| Professional institutes under examination | 61.4% | 9,685 |
| **Total general** | **79.5%** | 364,835 |

Another indicator of the relative efficiency of Chilean higher education institutions is the academic level of the students they are able to recruit. All students applying to university education have to pass a national Academic Aptitude Test, which is used both for the selection of students and as a quality criteria for the universities, which affects the public subsidy they receive. Table 38 gives the mean tests of students admitted to different fields of knowledge and universities, together with other information (no PAA results for non-university institutions were available). The main finding of this table is that PAA requirements depend more on the institution to which the student applies than to his field of choice. Admission rates (the number of applications per available place) vary between 4.1 and 8.2 according to the field, and between 3.5 and 9.7 according to the institution, and are probably dependent on the geographical local of the institutions, the number of available places, and an estimation of the relative difficulty of being admitted. The Catholic University of Chile, one of the most prestigious in the country, has one of the lowest admission rates (3.5 students per place, against 5.9 for the country as a whole) but is also the most selective, in terms of the results in the PAA, suggesting that only the best-qualified students apply. [69]

[69] Overall, only one in each 3.6 candidates going through the PAA entered university education in 2002. However, universities provide only 36% of Chile's higher education seats, meaning that there are other oppportunities for those who are admitted in the most prestigious institutions.

**Table 38 – Chile: Vacancies, admissions and mean aptitude test scores of applicants to universities, 2002**

| Chile, vacancies, admissions and mean aptitude test scores of applicants to universities, 2002 | | | | | | |
|---|---|---|---|---|---|---|
| | courses | vacancies | applications(*) | admitted | admission rate | mean academic aptitud test(**) |
| **a) fields** | | | | | | |
| agriculture | 10 | 840 | 4,289 | 1,035 | 4.1 | 612.6 |
| education | 74 | 3,413 | 31,602 | 4,385 | 7.2 | 593.6 |
| health professions | 85 | 4,724 | 46,132 | 5,365 | 8.6 | 687.1 |
| humanities | 58 | 2,003 | 15,751 | 2,653 | 5.9 | 615.3 |
| natural sciences | 91 | 3,823 | 28,411 | 5,124 | 5.5 | 616.7 |
| social professions | 102 | 6,338 | 44,945 | 7,861 | 5.7 | 616.8 |
| social sciences | 25 | 1,187 | 12,492 | 1,532 | 8.2 | 644.8 |
| technology | 308 | 19,960 | 121,236 | 24,051 | 5.0 | 615.6 |
| Total | 753 | 42,288 | 304,858 | 52,006 | 5.9 | 622.2 |
| **b) universities** | | | | | | |
| Pontif Universidad Catolica de Chile | 32 | 3,213 | 12,731 | 3,593 | 3.5 | 713.8 |
| Universidad de Antofagasta | 20 | 1,240 | 6,831 | 1,554 | 4.4 | 568.0 |
| Universidad de Atacama | 13 | 545 | 3,667 | 619 | 5.9 | 537.5 |
| Universidad Austral | 30 | 1,680 | 11,304 | 1,924 | 5.9 | 618.7 |
| Universidad de Bio Bio | 30 | 1,742 | 11,753 | 1,912 | 6.1 | 601.1 |
| Universidad de Chile | 50 | 3,926 | 24,543 | 4,279 | 5.7 | 708.2 |
| Universidad Catolica de Maule | 14 | 845 | 5,595 | 915 | 6.1 | 616.4 |
| Universidad Catolica del Norte | 25 | 1,483 | 8,073 | 2,044 | 3.9 | 586.8 |
| Universidad de Concepción | 65 | 3,543 | 31,577 | 4,645 | 6.8 | 632.7 |
| Universidad Católica de la Santísima Concepción | 16 | 1,193 | 9,666 | 1,890 | 5.1 | 584.8 |
| Universidad Catolica de Temuco | 21 | 1,020 | 7,316 | 1,527 | 4.8 | 554.7 |
| Universidad Católica de Valparaiso | 49 | 2,380 | 15,985 | 3,511 | 4.6 | 646.9 |
| Universidad de la Frontera | 33 | 1,400 | 12,995 | 1,570 | 8.3 | 621.1 |
| Universidad de los Lagos | 19 | 825 | 7,174 | 1,080 | 6.6 | 544.9 |
| Universidad de la Serena | 29 | 1,535 | 9,346 | 1,810 | 5.2 | 582.4 |
| Universidad de Magallanes | 14 | 590 | 2,734 | 590 | 4.6 | 551.9 |
| Universidad Metropolitana de Ciencias de Educación | 23 | 993 | 5,818 | 1,005 | 5.8 | 616.9 |
| Universidad Arturo Platt | 25 | 1,305 | 7,623 | 1,621 | 4.7 | 538.1 |
| Universidad de Playa Ancha de C, Educación | 38 | 1,220 | 14,084 | 2,052 | 6.9 | 578.0 |
| Universidad Austral | 61 | 3,290 | 26,477 | 3,910 | 6.8 | 641.1 |
| Universidad de Talca | 20 | 1,223 | 7,507 | 1,385 | 5.4 | 552.7 |
| Universidd de Tarapaca | 14 | 1,000 | 5,672 | 1,150 | 4.9 | 636.6 |
| Univesidad Tecnologica Metropolitana | 27 | 1,905 | 15,167 | 2,096 | 7.2 | 628.5 |
| Universidad Tecnologica F. Santa Maria | 52 | 2,100 | 15,151 | 2,624 | 5.8 | 630.3 |
| Universidad de Valparaiso | 33 | 2,092 | 26,069 | 2,700 | 9.7 | 624.3 |
| **Totals** | | | | | | |
| applications | 753 | 42,288 | 304,858 | 52,006 | 5.9 | 622.2 |
| Candidates applying to the Aptitude Test | | | 188,205 | 52,006 | 3.6 | |
| Candidates obtaining 450 points or more in PAA | | | 110,681 | 52,006 | 2.1 | |
| Candidates applying to higher education courses | | | 74,785 | 52,006 | 1.4 | |

(*) Each candidate can apply up to 8 courses

(*) weighted by the number of students admitted. Association between fields and PAA scores: Eta: 0.365; Eta Squared, 0.133. Association betsween institutions and PAA Eta: 0.757; Eta Squared, 0.573

Source: Tabulated from data provided by the Departamento de Evaluación, Medición y Registro Educacional de la Universidad de Chile (DEMRE)

## *Policies for reform*

The democratic government that took over in 1990 decided to keep the broad lines of the system established in the 1980s, trying, however, to improve it in several points. These improvements included the establishment of a national Council for Higher Education (Consejo Superior de Educación), responsible for the assessment and accreditation of private institutions; a gradual increase in public money going to higher education[70]; and better terms for student loans, to the benefit of students with less resources. The Chilean government has officially supported universal coverage of loan schemes including both public and private sector students and all three institutional levels. In the nineties, the drive for the creation of new private

[70] The estimation is that, between 1990 and 1999, public expenditures in Chile with higher education grew by 85% in real terms (Brunner 1999).

institutions has stopped, and the tendency for diversification of enrollment seemed to have been reversed. As Table 30 and the following shows[71], universities now have a larger share of student enrollment than they ever had; private higher education continued to grow, but with less public subsidies; and there was a dramatic drop in the relative size of the technical training centers.

*Colombia*

*Historical development*

Colombia's first Church universities date from the 16th and 17th century, and the first Republican University is from 1826. Throughout this long history, the universities alternated between periods of autonomy and state control. The current system was defined by the Constitution of 1991 and the Law number 30, of 1992; it is a comprehensive legislation, which assures the autonomy of the universities, and establishes several mechanisms to assess and stimulate their quality, with a special role given to ICFES, the Colombian Institute for the Support of Higher Education.

Today, Colombian higher education is similar to Chile's in several aspects, including a strongly stratified higher education system. The legal framework for that system was established in 1980, revised in 1992, and is currently under revision again.[72] The 1980 legislation was very permissive, and in 1991 Colombia had 243 higher education institutions, 171 of which private. The 1992 legislation recognized three types of higher education institutions: universities, university-level professional schools, and technical schools.[73] That year, the concept of "university" was reshaped, to include the requirement of research (without, however, changing the status of the existing institutions), and they were granted autonomy to elect their own authorities and establish new course programs. A national entity was created to coordinate the higher education sector, the National Council of Higher Education (CESU) administered through the "Instituto Colombiano de Fomento de la Educación Superior (ICFES), which is now an agency within the Ministry of Education. A voluntary system of accreditation was to be established, together with a system for higher education information and statistics. State owned universities were brought together into a unified system, which was expected to coordinate their efforts and resources. Public universities were to be financed according to automatic mechanisms. In short, the 1992 legislation meant, for public universities, a higher degree of autonomy, in a combination of administrative and corporatist and professional coordination, and

[71] Data from Chile's Ministry of Education's web site (www.mineduc.cl) .

[72] For an overview of the evolution and current proposals for higher education reform in Colombia, see Colombia, Instituto Colombiano para el Fomento de la Educación Superior 2001a, and Yarce 2002.

[73] The following summary is based on Brunner et al. 1995. See also Caro 1993 and Lucio 1994.

automatic and incremental subsidies from the government; and, for private institutions, more autonomy and market competitiveness.

### *The labor market for graduates*

Most of the urban employment in Colombia, like in other Latin American countries, is in the areas of services, with manufacture taking up 13.5% of the labor force (Table 39). Higher education graduates work mainly in the area of services, trade and finance. Graduates from technical and professional course (four years or less of education) have a similar distribution, with more emphasis on commerce and tourism, and in manufacture. Most of the workforce in manufacture, however, has a secondary degree or less.

**Table 39 – Colombia, areas of economic activity by levels of education, 2000**

| Colombia, areas of economic activity, by levels of education, 2000 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | no education | primary, incomplete | primary | secondary, incomplete | secondary | higher education, 4 years and less | higher education, 5 years and more | Total |
| social and communitary services | 14.6% | 17.1% | 23.2% | 26.9% | 29.9% | 38.7% | 52.7% | 27.0% |
| Agriculture, hunting, fishing | 57.8% | 47.5% | 29.8% | 11.6% | 5.6% | 2.3% | 1.8% | 22.6% |
| trade, restaurants and hotels | 15.1% | 17.7% | 20.9% | 27.5% | 28.4% | 22.4% | 11.8% | 22.0% |
| manufacture | 6.0% | 8.5% | 12.7% | 18.1% | 19.2% | 13.8% | 8.9% | 13.5% |
| transport and communications | 1.9% | 3.1% | 4.9% | 6.8% | 7.3% | 6.4% | 4.0% | 5.2% |
| financial establishments | 0.6% | 0.8% | 1.6% | 2.5% | 5.4% | 13.0% | 16.7% | 4.3% |
| construction work | 2.9% | 4.4% | 6.0% | 5.6% | 2.7% | 1.4% | 2.2% | 4.1% |
| mining | 1.1% | 0.8% | 0.5% | 0.4% | 0.4% | 0.4% | 0.6% | 0.6% |
| electricity, water and gas | 0.0% | 0.1% | 0.3% | 0.5% | 0.9% | 1.4% | 0.9% | 0.5% |
| Total | 1,111,547 | 3,073,026 | 2,919,296 | 3,149,061 | 3,191,492 | 921,428 | 1,415,314 | 15,869,168 |

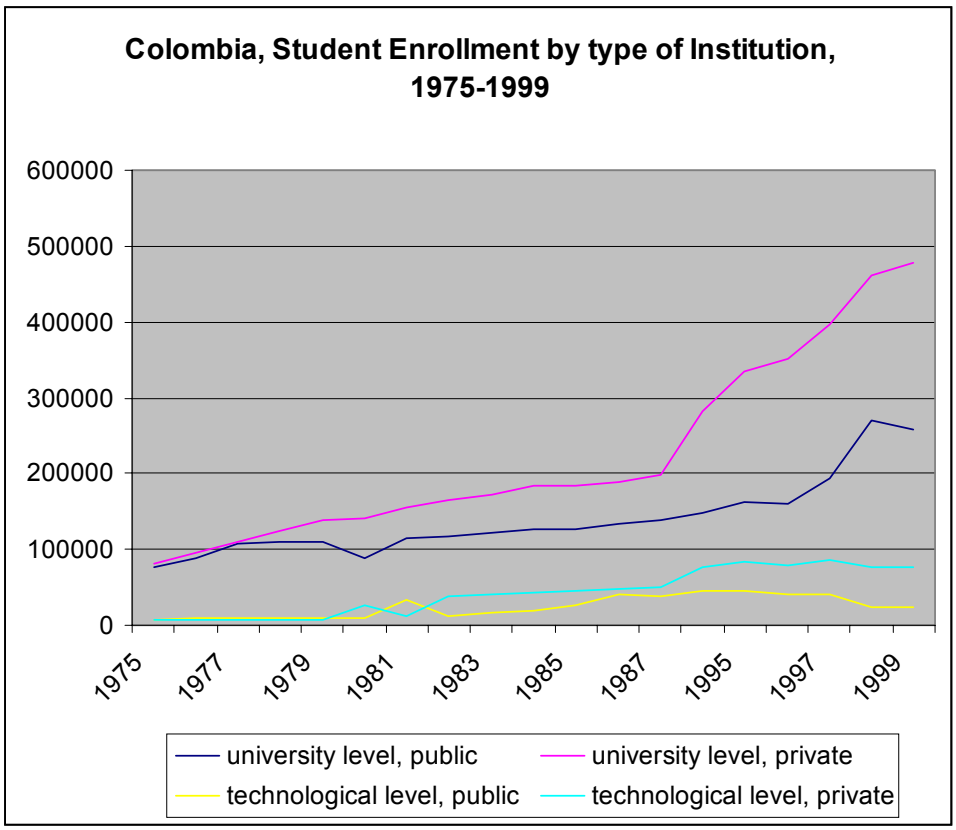
Colombia, National Household Sample /DANE, 2000.

### *The demand for higher education*

The evolution of student enrollment in Colombia throughout the years can be seen in Table 40: technical, or vocational education developed very little, and participation in private university-level institutions grew much more rapidly than in the public sector. About sixty percent of the students are in evening courses, a proportion that has not changed much in recent years; and, throughout the 1990s, Colombia has had about 10% of its higher education students enrolled in some kind of distance education.[74]

[74]Colombia, Instituto Colombiano para el Fomento de la Educación Superior 2001a, p.154.

**Table 40 – Colombia, student enrollment by type of institution, 1975-1999**[75]




The distribution of students by fields of knowledge or areas of study is coherent with the labor market (Table 41): most students are in administration, law, and education, with a significant percentage in engineering and related fields. The trend, in the last decades, has been marked by increases in administration and engineering and related fields, and a significant drop in the relative importance of education. The breakdown by public / private reveals that, in Colombia, the public sector is becoming specialized in some small niches of higher education – mathematics and science, agriculture, and a portion of arts, humanities and education – while the private sector takes care of the large ones – administration and economics, law, health and engineering (Table 42).

[75] There is no information for the 1988-1993 period.

**Table 41 – Colombia, students enrolled in undergraduate courses, first academic period, by fields of knowledge and years**

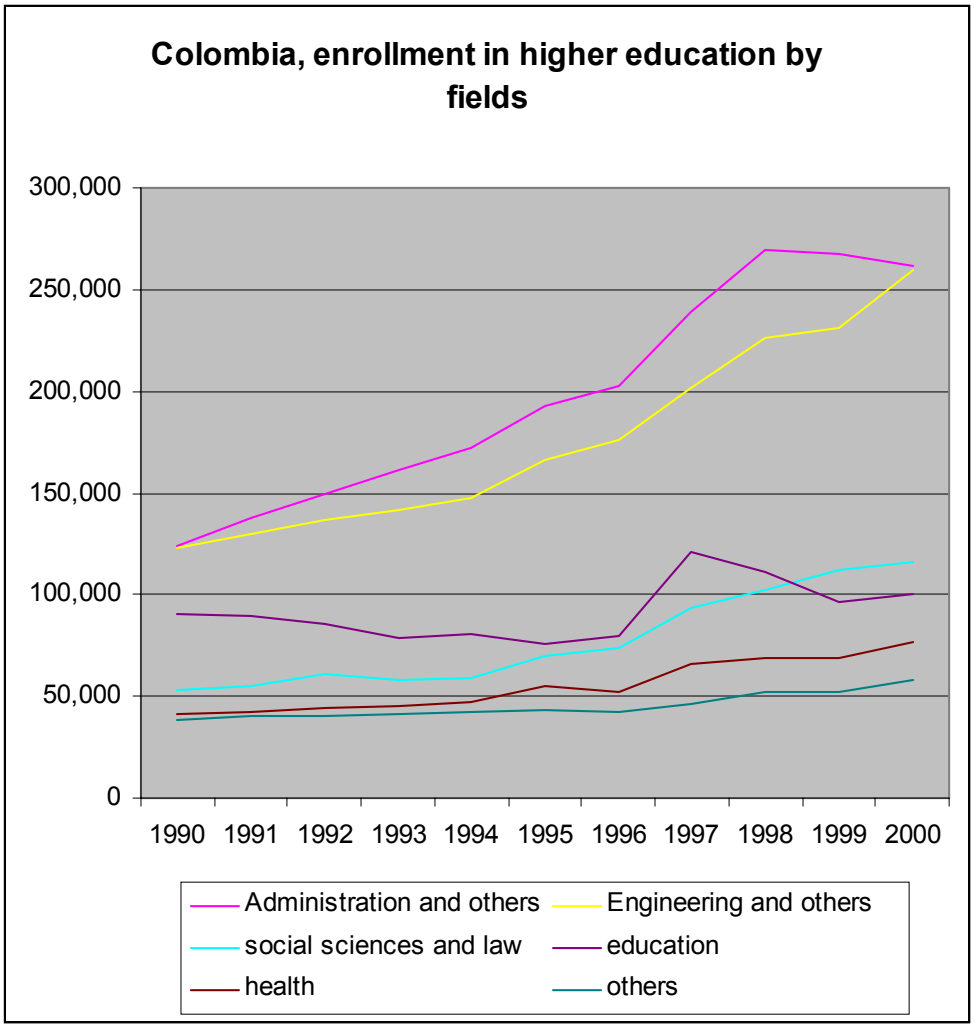
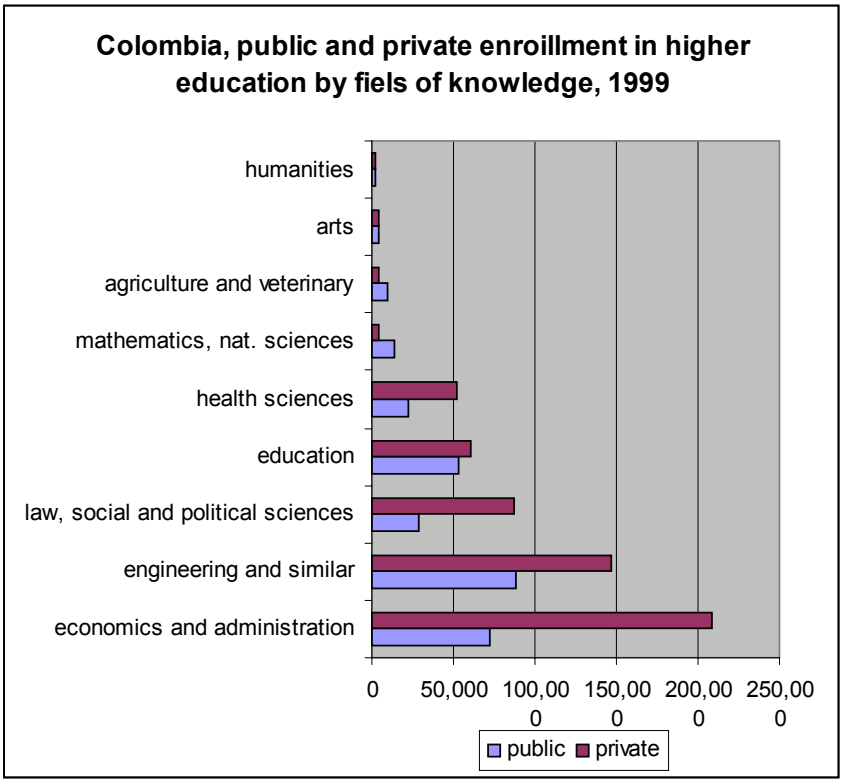


**Table 42 –Colombia, public and private enrollment in higher education by fields of knowledge, 1999**

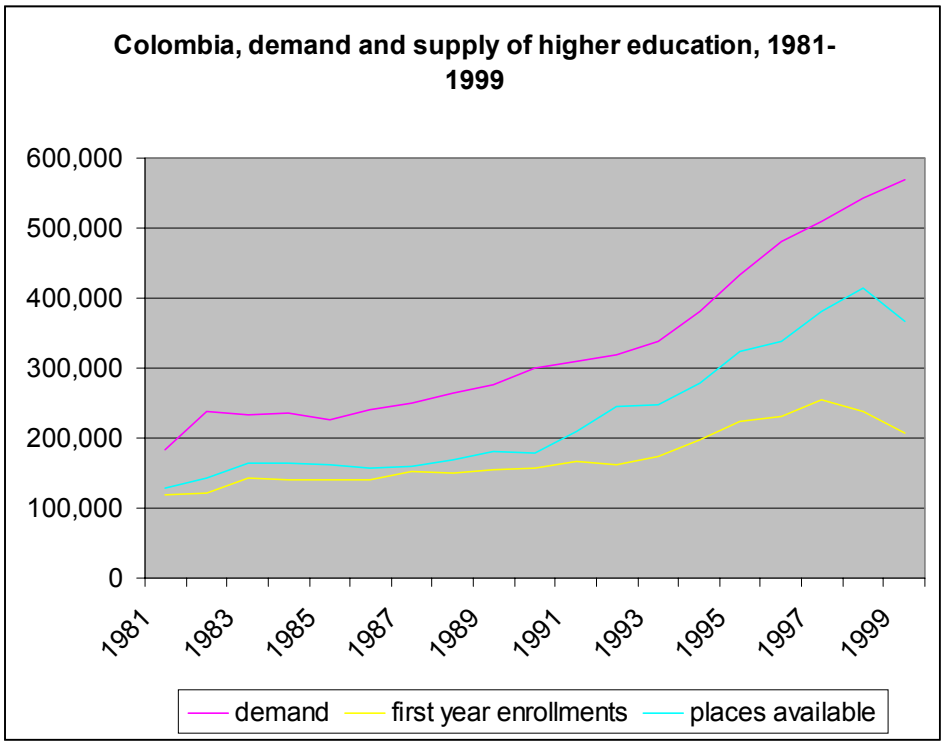



*Efficiency and queuing*

For many years, Colombia has had a national examination system for students entering higher education institutions. This examination, known as "*Examen de Estado*", is used by higher education institutions, both public and private, to select their students, either by itself or in combination with other criteria.[76] Data on the number of students taking this exam each year is an indication of demand for higher education in the country.

[76] Colombia, Instituto Colombiano para el Fomento de la Educación Superior 2001c.

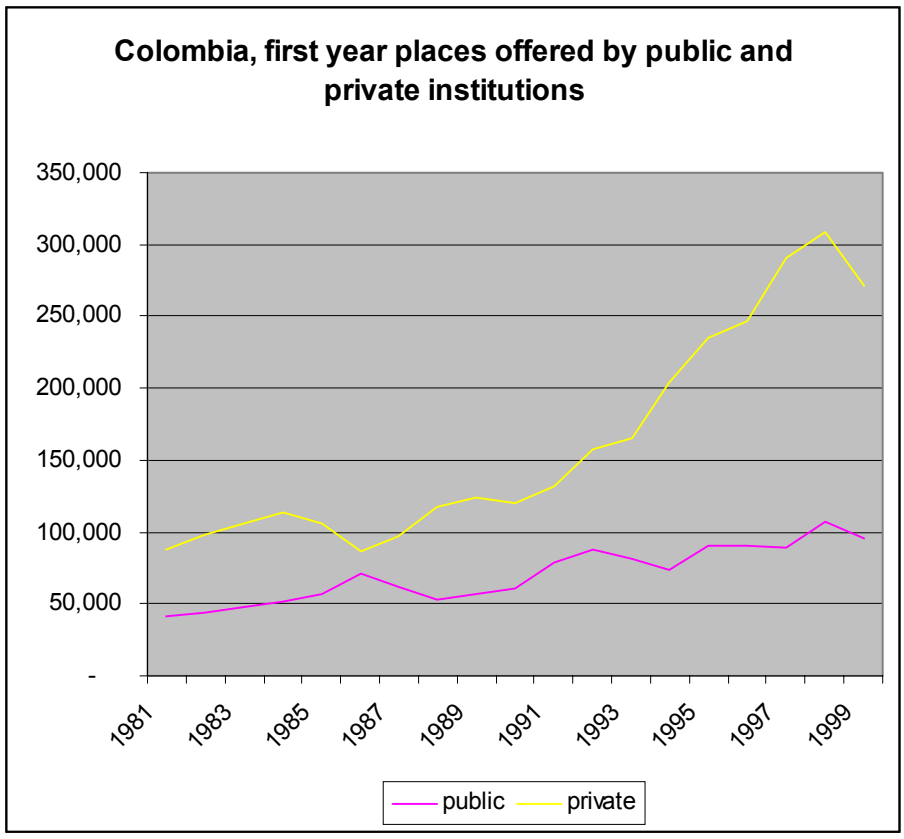
**Table 43 – Colombia: demand and supply of higher education, 1981-1999**




The number of places offered by Colombian universities grew from 128 thousand in 1980 to more than 400 thousand in 2000[77]. During this period, the proportion of applicants to places remained more or less stable, at 1.5 applicants per place, suggesting that, as a whole, the system has been very effective in keeping up with the demand. However, the number of places actually taken by students has been falling very strongly since 1990, particularly in the private sector and in non-university institutions, where about half of the available slots remain empty. The consequence is that the proportion of applicants that remain outside the system is growing, from a rate of 1.93 in 1990 to 2.74 in 1999. This shows a strong mismatch between demand and supply: the universities, especially those in the private sector, but also in the public sector, are not offering to the students what they want. Unfortunately, Colombia does not publish information on supply and demand of slots by professional fields, making it difficult to understand better the reasons for this situation.

[77] This figure, however, is uncertain. The more recent "informe" of Colombian higher education gives a total of 414,790 places available for 2000 on table 3.8, and 491,743 on table 3.7, both attributed to ICFES. Yarce 2002

**Table 44 – Colombia, first year places offered by public and private institutions**




*Policies*

In 2001, the *Instituto Colombiano para el Fomento de la Educación Superior*, an agency within Colombia's Ministry of Education, published a document called "Basis for a State Policy for Higher Education", the conclusions of an extended consultation exercise started in 1999.[78] It is a conceptual and normative document, spelling out how the Colombian higher education system should be organized in terms of the functions and types of knowledge it should impart. There are specific recommendations about student credit, an integrated fund for higher education, allocation mechanisms based on targets and results, and the provision of an adequate legal framework for the universities. There are also recommendations for the establishment of a national system for "inspection, vigilance and control" of higher education institutions, with institutional accreditation, to be administered by ICFES. This document was presented to the government as a contribution for the establishment of a national policy for higher education. Given the Presidential election to take place in 2002, and the problems created by the state of civil war, it is not likely these recommendations will receive the attention they deserve in the near future.

[78] Colombia, Instituto Colombiano para el Fomento de la Educación Superior 2001a.

*Brazil*

*Historical development*

Brazilian first higher education institutions date from the early 19th century, with the first universities established in the 1930s. In practice, these early universities did not amount to more than collections of professional schools, to which it was added a "faculty of philosophy" which doubled as a teacher school and a faculty of sciences and letters. In 1968, a higher education reform was implemented, with important innovations, taken from the American model: a new tier for graduate education; institutes and departments; the credit system; and a frustrated attempt to create an undergraduate two-year cycle of "basic studies" before professional education. In practice, Brazilian higher education became very much a hybrid of a European model of professional (undergraduate) education at the lower level, followed by an American-style graduate level for master and doctoral studies.[79]

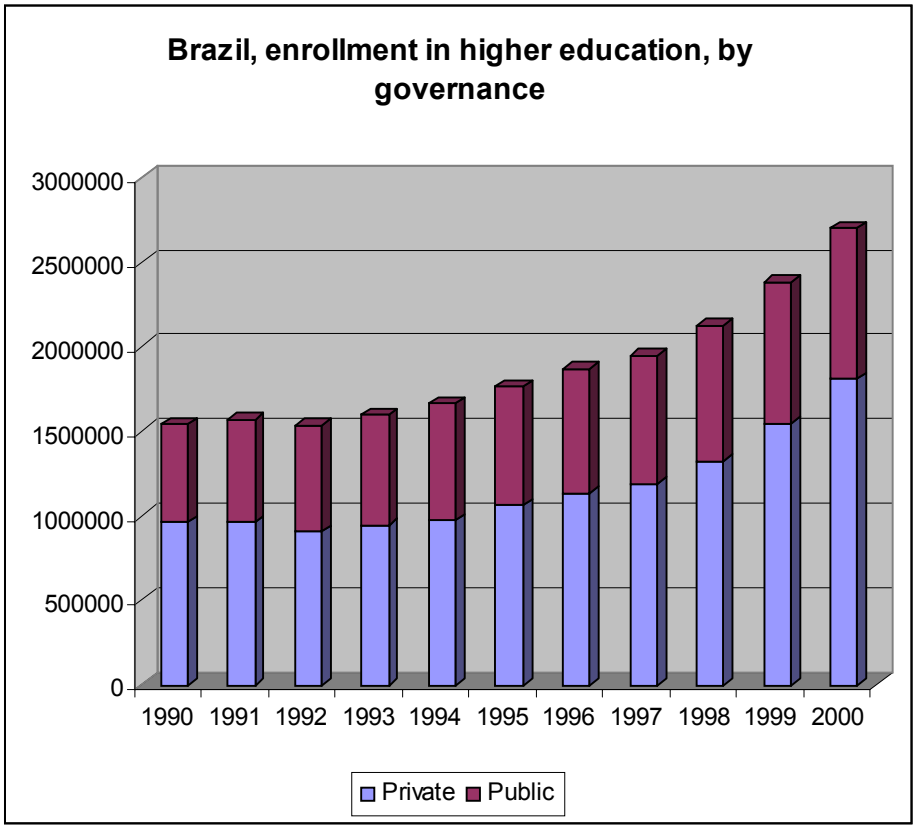
*Segmentation*

In Brazil, higher education was always considered an attribution of the national government, and private institutions had to follow the rules and regulations established for them. Since the 1930s, there is a Ministry of Education and a National (or Federal) Council of Education, who play this supervising role. After the mid-sixties, private higher education started to grow at great speed; today, the private sector absorbs about two thirds of the enrollment.[80]

[79] See, for the history of Brazilian higher education and research institutions, Schwartzman 1991 and Schwartzman, Bomeny, Costa, and Capanema 2000. For an overview of Brazilian higher education in the 1980s, Schwartzman 1988.

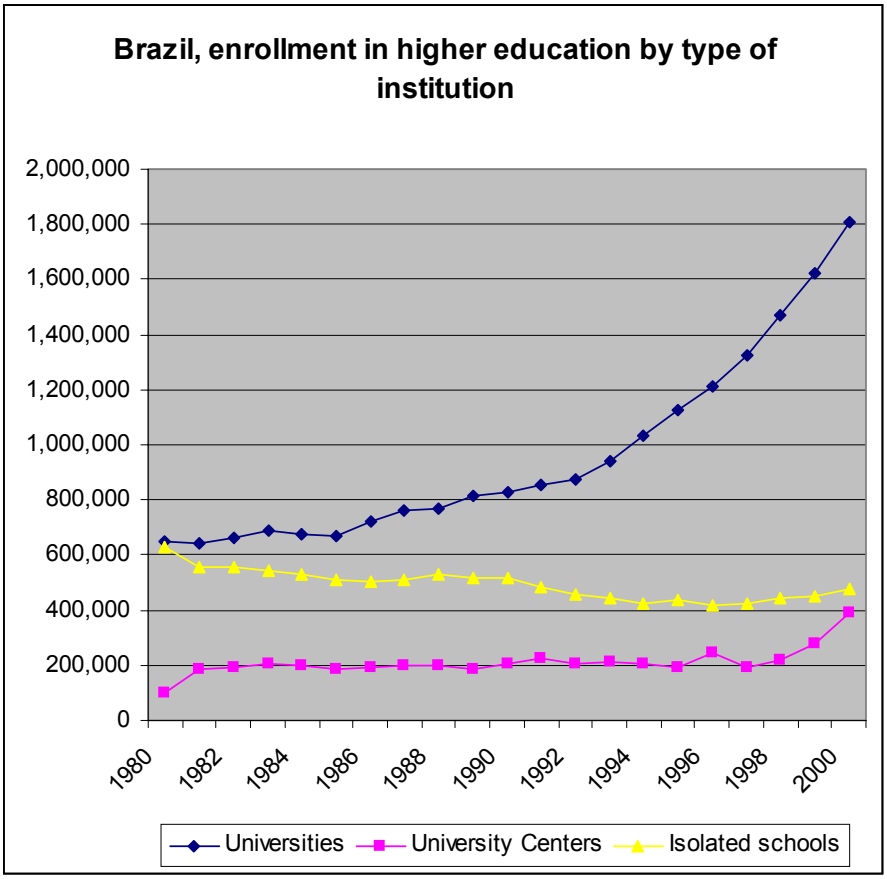
[80] For an overview of private higher education in the country, see Sampaio 2000.

**Table 45 – Brazil, enrollment in higher education, by governance**




Brazilian higher education is, nominally, a unified system, in the sense that all degrees in law or medicine, for instance, whether from a large public university or a small private institution, have the same legal standing. However, the legislation distinguishes between "universities", which are supposed to cover the main fields of knowledge and develop graduate education and research, and "isolated institutions", working only in one or two fields, usually in the "soft" disciplines. This distinction has practical consequences, since universities are more autonomous to create new course programs and open up vacancies, while "isolated institutions" require authorization from the Ministry and the National Council of Education for these decisions. This legal distinction has led to strong pressures from the private sector for lowering the requisites for university status, and for the creation of intermediate categories, such as "university centers" and "integrated faculties". The consequence has been a drift from the isolated schools into the university or quasi-university mainstream. This institutional change does not mean, necessarily, that the students are getting a different or better type of education.

**Table 46 – Brazil, enrollment in higher education by type of institution**




Brazil lacks a significant tier of vocational, "technical" or "professional" post-secondary education like the ones in Chile and in most other countries. In 1998, the Ministry of Education took the first census of professional education, and was able to identify about four thousand institutions providing this type of courses, only 258 of which, however, at the post-secondary level, with a total enrollment of 97 thousand students; 75% of these institutions were private. Of the students, about 70 thousand were in the services area, and, of those, 57% were taking courses in "informatics", or data processing.

A recent development was the authorization, by the Ministry of Education, for institutions to create what is called "sequential courses", which means, in practice, any combination of disciplines, adjusted to the student's needs. Preliminary indications suggest that private institutions are using this flexibility to provide all kinds of short-term course programs. On the other hand, public institutions are finding it difficult to make use of this new freedom, since the certificates provided by these special courses would not provide the students with a well-defined professional degree.

*The labor market for higher education*

Table 47 shows the occupations of persons with higher education in 1992 and 1999. The pattern is similar to what is found in other countries in the region, and has remained remarkably stable throughout the 1990s. Most of the employment is in

services and social activities and government; industry, already a small sector in 1992, lost almost 3% of its share of the educated labor force in the decade. Table 48 shows how the employment situation has changed during the period: regular jobs, both private and public, have dropped significantly, being replaced by self-employment and other working arrangements.

**Table 47 – Brazil, occupation of persons with higher education, 1992-1999**

| Brazil, occupation of persons with higher education, 1992-1999 | | | |
|---|---|---|---|
| | 1992 | 1999 | % change 1992-1999 |
| services to business | 9.91% | 14.22% | 4.31% |
| services | 4.35% | 5.24% | 0.89% |
| trade | 9.75% | 10.67% | 0.92% |
| agriculture | 1.74% | 1.74% | 0.00% |
| social activities | 34.29% | 33.87% | -0.42% |
| transportation, communication | 2.53% | 2.47% | -0.06% |
| public administration | 12.68% | 12.17% | -0.51% |
| construction | 2.10% | 1.86% | -0.25% |
| other activities | 8.38% | 6.67% | -1.71% |
| industry | 12.26% | 9.61% | -2.65% |
| other industrial activities | 2.00% | 1.49% | -0.52% |
| | 100.00% | 100.00% | |
| total | 5,292,567 | 5,677,727 | |
| **Source: tabulation of data from the Brazilian National Household Survey (PNAD/IBGE), 1992-1999** | | | |

**Table 48 – Brazil, changes in the position in the occupation of persons with higher education, 1992-1999**

| Brazil, changes in the position in the occupation for persons with higher education, 1992-1999 | | | | | |
|---|---|---|---|---|---|
| | totals | | percentage | | % change |
| | 1992 | 1999 | 1992 | 1999 | |
| private employment | 1,341,966 | 1,731,553 | 40.44% | 35.19% | -5.24% |
| military | 35,186 | 38,086 | 1.06% | 0.77% | -2.74% |
| civil servant | 944,254 | 1,264,950 | 28.45% | 25.71% | -2.74% |
| others, employed | 216,046 | 484,033 | 6.51% | 9.84% | 3.33% |
| self employed | 385,397 | 723,402 | 11.61% | 14.70% | 3.09% |
| employer | 361,669 | 599,900 | 10.90% | 12.19% | 1.29% |
| other situations | 34,227 | 78,363 | 1.03% | 1.59% | 3.60% |
| **Total** | 3,318,745 | 4,920,287 | 99.99% | 99.96% | |
| Source: PNAD 1992 and 1999 | | | | | |

## *Supply and demand*

The main characteristics of Brazilian higher education today are given on Table 49. Private higher education takes up 62% of the total enrollment, two thirds of which in evening courses. Teaching is done mostly by part time instructors. Public higher education, which is provided free, takes place in federal and state universities, and a few municipal institutions. Federal universities belong to the national government. All teaching and administrative personnel in federal institutions are

public employees, under the same legal statute and homogeneous salaries and benefits. They are all full-time employees, stable in their jobs, and a growing proportion has doctor or MA degrees. State universities belong to state governments. The state of São Paulo, the richest in the country, has three universities that rank among the best, two of them, the University of Campinas and the University of São Paulo, with a strong research component. Other states are less endowed, and their universities are similar to those in the private sector, with little research and part time teaching staff. Half the enrollment in state universities is in evening courses; in the federal system, however, it is not more than a fifth.

**Table 49 – Brazil, percentage of students in evening courses, by fields of specialization and type of institution**

Brazil, percentage of students in night courses, by field of specialization and type of institution

| | Agriculture and animal husbandry | social sciences, business and law | Sciences, mathematics and IT | Education | engineering, production and construction | humanities and ars | health and welfare | services | Total | (N) |
|---|---|---|---|---|---|---|---|---|---|---|
| Non-profit (*) | 7.2% | 69.3% | 68.7% | 78.0% | 42.8% | 61.1% | 17.7% | 57.6% | 60.8% | 926,664 |
| State owned | 0.0% | 61.7% | 35.8% | 54.8% | 25.7% | 43.5% | 8.9% | 36.3% | 44.6% | 332,104 |
| Federal | 1.0% | 39.9% | 19.8% | 33.0% | 10.8% | 23.5% | 4.2% | 37.2% | 23.1% | 482,750 |
| Municipal | 0.0% | 79.1% | 69.1% | 93.6% | 43.1% | 100.0% | 24.1% | 100.0% | 75.6% | 72,172 |
| Private | 0.1% | 77.8% | 79.3% | 85.2% | 61.3% | 78.0% | 28.4% | 74.0% | 71.8% | 880,555 |
| Total | 1.6% | 69.6% | 55.7% | 67.1% | 34.6% | 46.5% | 17.1% | 64.7% | 56.1% | 2,694,245 |
| (N) | 63,260 | 1,122,142 | 233,726 | 584,664 | 234,497 | 88,559 | 323,196 | 44,201 | 2,694,245 | |

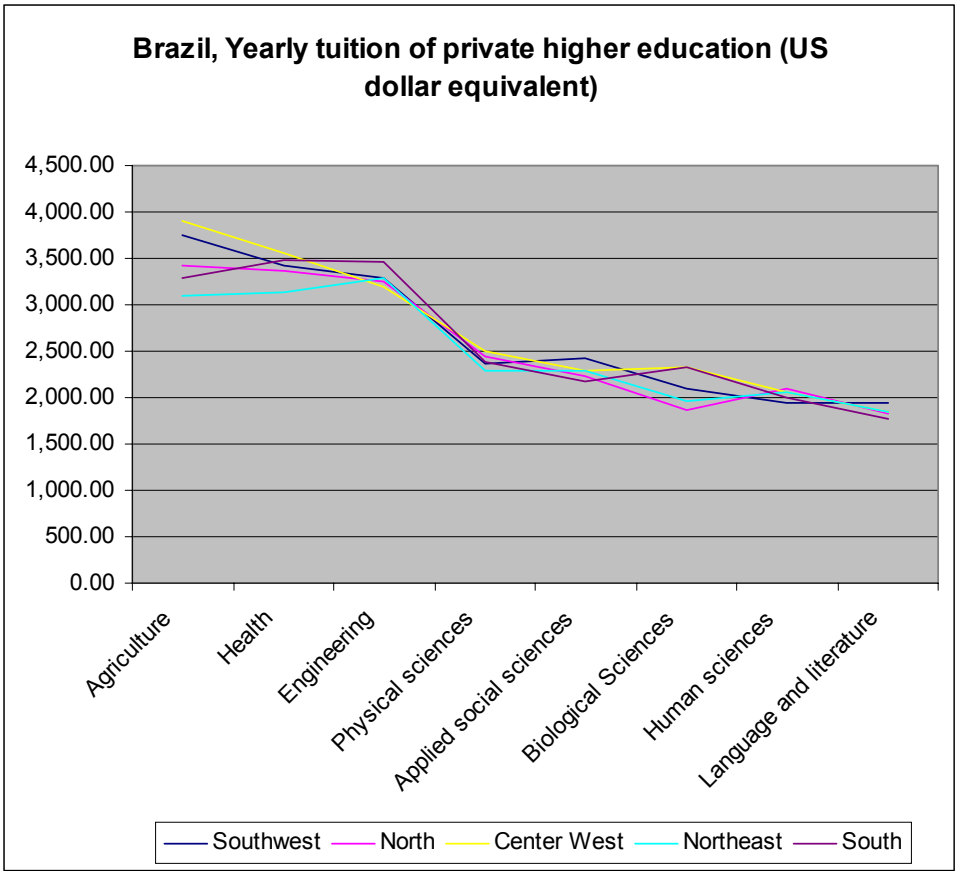
(*) religious, communitarian, philanthropic
Source: INEP, Censo do Ensino Superior, 2000

Regarding subject areas, 41.6% of the students are in the applied social sciences (administration, law, economics), and 21.7% in the humanities (including education and language). Health takes up 12%, and "exact sciences" (including teacher training in mathematics) another 8.7%. Engineering is also a small field, with less than 9% of the total enrollment. Federal institutions specialize in the most technical and scientific-intensive fields (biology, engineering, health, agriculture), while private institutions specialize in the social professions. The fields covered by public institutions are mostly provided through day courses – biology, engineering, health, agriculture – while the social professions, humanities and arts and literature and "exact sciences" are given in the evening.

Annual tuition costs of higher education vary between two and four thousand dollars, depending on the field, with little variation allowed for regional differences, which reflect income differences of the population (Table 50). These figures should be compared with the mean family income of higher education students, of about US$ 3,000.00 a month.[81]

[81] For tuition costs in 2001, the "real" prices were converted to US dollars with the exchange rate of 2.3. The information on family income is from the National Household Survey of 1999, when the real and the US dollar had the same value. Since dollar was undervaluated in 1999, and over valuated in 2001, the relative costs in 2001 were higher than the dollar figures imply.

**Table 50 – Brazil, yearly tuition costs of higher education, 2001**




Access to higher education in public universities and in the most prestigious careers is restrained by entrance examinations that can be extremely competitive. Less endowed students, financially and educationally, end up in less prestigious fields and institutions, and in the private sector. The general assumption has been, therefore, that students in the private sector are always from lower social backgrounds. This, however, is not always so. Data of the state of Ceará analyzed by Jean-Jacques Paul "shows that the federal and private institutions have a similar socioeconomic profile, while students in the state institutions have a distinctive lower socioeconomic status." The main differences are associated with the choice of careers. Students with high socioeconomic status go to civil engineering, data processing, medicine, dentistry and administration in the federal university, and data processing and administration in the private sector; students with low SES study geography, nursing and literature in the federal university; literature, pedagogy, geography and science (evening courses) in the state university; and geology and literature in the private sector. "Clearly, then, certain courses attract students of higher or lower socioeconomic status, irrespective of whether they attend public or private institutions".[82] Data for São Paulo students show the same pattern: there is not much difference in family income between

[82] Paul and Wolff 1992, p. 544-545.

students in public and private institutions, although there are important differences in their parents' educational levels. Most of the differences, in any case, are explained by differences in career choices, or career opportunities. Students in pedagogy, for instance, come from low SES strata, while students of dentistry and marketing come from the higher ones.[83] Analysis of the socioeconomic questionnaires given to students participating in the National Careers Examination (known as "*provão*") show a higher proportion of poor students in public than in private institutions.[84] Still, since most of the careers in the private sector are in low prestige fields, the end result is that the students in the private sector, as a whole, are from lower SES than those in the public one, but the differences are not as sharp as it is usually thought.

**Table 51, São Paulo, Brazil: family income of students in public and private institutions**

| São Paulo, Brazil: Family income of students in public and private higher education institutions (%) | | |
|---|---|---|
| | private institutions | pubic institutions |
| up to 2 minimum wages | 0.3 | 1.8 |
| from 2 to 6 | 12.1 | 10.6 |
| from 6 to 10 | 22.6 | 22.9 |
| from 10 to 20 | 31.2 | 32.2 |
| more than 20 | 33.9 | 32.7 |
| Source: Cardoso & Sampaio, 1994 | | |

*Efficiency and queuing*

The questions of *external efficiency* refer to the ability of higher education institutions to provide access and education to those demanding it. How many students apply to these different institutions and course programs? What types of barriers they encounter? How many are admitted, and fulfill their expectations?

Demand, which was sluggish in the eighties, started to grow again in the late nineties, and is likely to keep on growing, given the recent expansion of secondary education. Supply of places has been following at a distance (Table 52). The usual practice, in the most competitive fields, is for the candidate to apply to several institutions, which means that the actual rate of candidates per seat is significantly smaller. To apply is not enough to send in papers, since written tests are required. We have no estimation of the number of applications a student makes, in average, each year, but we can assume that multiple applications are more likely in fields that are more competitive.

[83] Sampaio 2000; Cardoso and Sampaio 1994. Career choices are determined, presumably, by a combination of the prestige and expected status of the professions, and the difficulty of the entrance examinations. Another important factor is the professional activity the students already have. Students of pedagogy, for instance, tend to be schoolteachers seeking a university degree to get better salaries and opportunities for promotion.

[84] Sampaio, Limongi, and Torres 2000

**Table 52 – Brazil, demand and supply of higher education, 1990-2000**

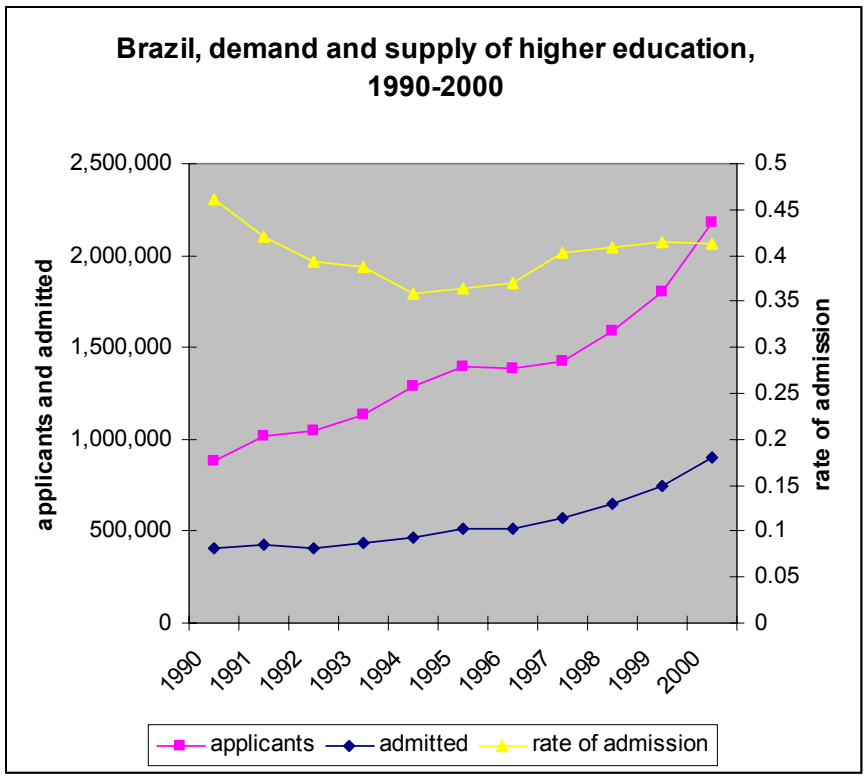


**Table 53 – Brazil, candidates per seat in higher education, public and private institutions**

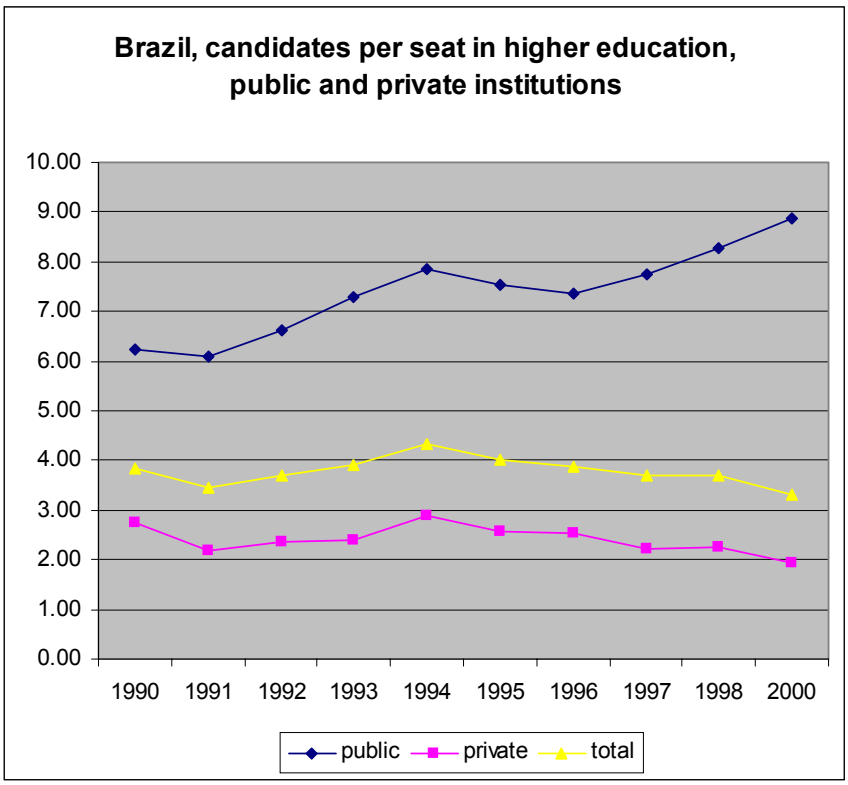



Table 53 shows that, in recent years, it is becoming more difficult to get into free, public higher education institutions, but easier to get into the private sector. Table 54gives the distribution of students by broad fields of knowledge and types of institution, and Table 55 provides detailed information on demand and supply of higher education by fields of knowledge and course programs, for areas with five thousand or more students.

**Table 54 – Brazil, enrollment in higher education by fields of study and types of institution**

| Brazil, enrollment in higher education, by fields of study and types of institution | | | | | | | |
|---|---|---|---|---|---|---|---|
| | percentages | | | | | | N |
| | Non-profit | State owned | Federal | Municipal | Private | Total | |
| Agriculture and animal husbandry | 1.00% | 3.60% | 5.90% | 1.60% | 1.40% | 2.30% | 63,260 |
| social sciences, business and law | 47.40% | 19.90% | 24.30% | 43.70% | 53.20% | 41.60% | 1,122,142 |
| Sciences, mathematics and IT | 8.10% | 8.10% | 12.10% | 7.50% | 7.70% | 8.70% | 233,726 |
| Education | 18.30% | 43.30% | 20.60% | 30.70% | 17.00% | 21.70% | 584,664 |
| engineering, production and construction | 8.10% | 10.70% | 14.40% | 6.60% | 5.60% | 8.70% | 234,497 |
| humanities and arts | 2.10% | 4.60% | 7.40% | 1.80% | 1.90% | 3.30% | 88,559 |
| health and welfare | 13.20% | 9.40% | 14.50% | 7.40% | 10.70% | 12.00% | 323,196 |
| services | 1.80% | 0.40% | 0.60% | 0.60% | 2.60% | 1.60% | 44,201 |
| Total | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 2,694,245 |
| N | 926,664 | 332,104 | 482,750 | 72,172 | 880,555 | 2,694,245 | |
| Source: INEP, Censo do Ensino Superior, 2000 | | | | | | | |

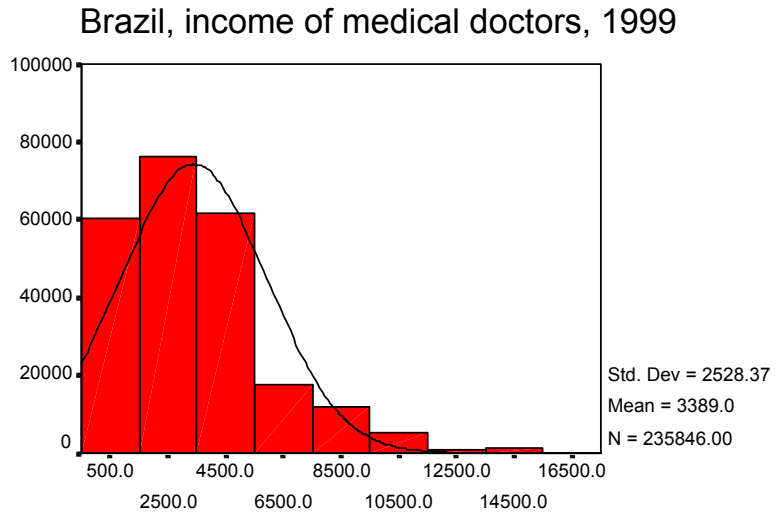
**Table 55 – Brazil, supply and demand for higher education, by main fields of study and types of institutions**

| Brazil, enrollments in higher education, by main fields of study and types of institution (detail) | | | applicants per place, by type of institution | | | | | | offerings |
|---|---|---|---|---|---|---|---|---|---|
| | courses offered | enrollment | Philanthropic | State | Federal | Municipal | Private | Total | % public |
| *Total* | *9,921* | *2,694,245* | *1.9* | *10.0* | *9.6* | *2.1* | *1.9* | *3.3* | *17.8%* |
| *a) Provided mostly by public institutions* | | | | | | | | | |
| agriculture and animal husbandry | 156 | 33,051 | 0.9 | 6.6 | 6.6 | 1.0 | 1.3 | 4.0 | 52.3% |
| Geology | 105 | 20,943 | 1.1 | 6.3 | 6.8 | | 0.9 | 4.5 | 61.6% |
| History and archeology | 63 | 16,647 | 1.0 | 10.4 | 8.9 | | 0.6 | 5.1 | 50.3% |
| Teaching education for basic schools | 83 | 15,385 | 1.1 | 2.4 | 1.3 | | 0.9 | 1.7 | 71.4% |
| Social and behavioral sciences (general courses) | 65 | 15,175 | 0.7 | 6.3 | 7.2 | 0.5 | 1.0 | 4.8 | 66.1% |
| Chemistry | 55 | 11,781 | 0.8 | 8.4 | 6.3 | 1.5 | 0.9 | 4.0 | 52.2% |
| Physics | 50 | 8,583 | 0.5 | 6.0 | 4.2 | | 0.5 | 3.8 | 79.1% |
| Library sciences | 44 | 7,710 | 0.5 | 4.3 | 6.2 | | 0.6 | 4.0 | 63.4% |
| Music and theater | 71 | 6,374 | 0.9 | 4.9 | 3.4 | | 0.9 | 2.5 | 52.2% |
| Statistics | 33 | 4,344 | 1.0 | 7.9 | 5.0 | | 0.8 | 4.2 | 65.7% |
| *b) provided mostly by private institutions* | | | | | | | | | |
| Law | 393 | 370,335 | 2.9 | 29.6 | 21.1 | 5.0 | 3.5 | 4.6 | 6.2% |
| Management | 922 | 338,789 | 1.7 | 12.7 | 10.9 | 2.1 | 1.6 | 2.2 | 5.0% |
| Teacher education in specific areas | 1,908 | 299,902 | 1.1 | 5.4 | 5.0 | 1.3 | 1.2 | 2.4 | 29.6% |
| Education | 744 | 203,036 | 1.1 | 6.8 | 4.6 | 1.2 | 1.4 | 2.3 | 23.6% |
| Accounting, taxation | 494 | 130,513 | 1.1 | 8.8 | 8.2 | 1.4 | 1.1 | 2.0 | 11.9% |
| therapy and rehabilitation | 380 | 91,085 | 2.4 | 28.1 | 19.1 | 2.8 | 2.4 | 3.8 | 7.0% |
| Journalism | 237 | 88,189 | 2.5 | 25.2 | 17.6 | 1.2 | 2.0 | 3.2 | 5.8% |
| Psychology | 173 | 70,721 | 2.0 | 20.5 | 19.3 | 2.2 | 2.4 | 3.7 | 8.4% |
| Computer sciences | 306 | 69,993 | 1.8 | 17.6 | 15.7 | 2.0 | 1.7 | 3.2 | 9.7% |
| Teacher education for professional areas | 351 | 66,109 | 1.6 | 6.5 | 8.4 | 1.8 | 1.5 | 3.2 | 28.5% |
| Economics | 238 | 65,414 | 0.9 | 8.7 | 6.2 | 0.7 | 0.9 | 2.1 | 19.4% |
| Data processing | 286 | 56,700 | 1.2 | 15.0 | 9.6 | 1.1 | 1.6 | 2.0 | 5.2% |
| Medicine | 99 | 55,486 | 20.9 | 56.2 | 38.1 | 27.9 | 26.5 | 32.6 | 49.4% |
| Civil Engineering | 161 | 47,744 | 1.3 | 6.7 | 5.8 | 0.9 | 1.1 | 2.8 | 32.9% |
| Dentistry | 140 | 46,324 | 3.0 | 22.1 | 18.2 | 2.3 | 3.3 | 6.9 | 23.0% |
| Nursing | 174 | 44,315 | 2.5 | 16.3 | 15.8 | 3.3 | 2.1 | 5.0 | 20.1% |
| Engineering (general) | 128 | 40,368 | 1.8 | 11.6 | 7.6 | 1.1 | 2.3 | 3.6 | 21.0% |
| Architecture and urbanism | 133 | 39,720 | 2.1 | 16.2 | 9.4 | 1.5 | 1.6 | 3.1 | 13.7% |
| Tourism | 220 | 37,906 | 2.1 | 20.8 | 14.4 | 2.6 | 1.7 | 2.3 | 2.8% |
| Pharmacy | 137 | 37,594 | 2.4 | 21.7 | 15.3 | 2.0 | 2.4 | 5.2 | 19.3% |
| Engineering, Mechanical | 124 | 36,219 | 1.1 | 8.2 | 6.3 | 1.3 | 1.3 | 3.4 | 36.9% |
| Biology and biochemistry | 148 | 35,163 | 1.6 | 16.7 | 12.0 | 1.7 | 1.8 | 4.6 | 24.4% |
| Electric and engineering | 99 | 31,670 | 1.7 | 10.2 | 8.4 | 1.9 | 1.2 | 3.7 | 31.0% |
| Humanities and language (general courses) | 104 | 31,638 | 1.1 | 12.9 | 5.9 | 1.2 | 1.6 | 3.2 | 23.7% |
| Veterinary | 90 | 25,231 | 1.9 | 20.4 | 13.9 | 3.7 | 2.4 | 6.0 | 28.6% |
| Health (general courses) | 83 | 24,033 | 1.7 | 16.5 | 11.4 | 1.3 | 1.7 | 2.7 | 8.8% |
| Social services and counseling | 93 | 23,262 | 1.5 | 14.3 | 8.9 | 1.6 | 1.4 | 3.8 | 26.8% |
| Marketing | 66 | 19,238 | 2.8 | 30.5 | 17.7 | 1.3 | 1.7 | 2.8 | 3.4% |
| Chemistry | 94 | 17,662 | 1.1 | 6.8 | 5.1 | 0.9 | 1.6 | 3.0 | 40.1% |
| Mathematics | 81 | 17,244 | 1.1 | 10.3 | 6.0 | 1.3 | 1.7 | 3.4 | 33.6% |
| Electronics and automation | 100 | 17,037 | 2.0 | 13.4 | 13.0 | 1.6 | 1.6 | 4.0 | 19.7% |
| Design | 66 | 12,113 | 1.8 | 11.9 | 9.4 | 1.9 | 1.2 | 2.7 | 12.9% |
| Secretariat and office work | 64 | 8,418 | 1.0 | 13.7 | 9.4 | 1.4 | 0.7 | 1.9 | 10.1% |
| Philosophy and ethics | 45 | 8,035 | 0.7 | 7.2 | 5.3 | 0.4 | 14.2 | 3.6 | 47.1% |
| food technology | 41 | 5,872 | 1.3 | 11.7 | 5.8 | | 0.7 | 3.7 | 38.3% |
| Political science and civics | 37 | 5,859 | 1.8 | | 20.1 | | 1.1 | 2.0 | 2.9% |
| Arts | 30 | 4,877 | 0.9 | 9.1 | 3.8 | | 1.1 | 2.9 | 45.0% |
| *Other* | *207* | *30,438* | *1.2* | *9.6* | *7.7* | *1.0* | *1.0* | *2.9* | *25.7%* |

Source: INEP, Censo do Ensino Superior, 2000

Very few areas are predominantly public today. Even for medicine, where competition is fierce, more than half of the openings are in private institutions. The number of candidates per place in the private sector is usually small, except for medicine and law (Table 57). The high demand for medicine has a clear economic justification. The average income of a medical doctor, of 3,389 reais a month according to the 1999 PNAD, was very high for Brazilian standards, similar to the averages of entrepreneurs of different kinds (in the 4 thousand bracket) (Table 56). The mean income for engineers, in contrast, was about 3,000, and for lawyers, about 2,800. However, there is great variation in income, and about two thirds of the medical doctors work as employees in public or private institutions. There is certainly more than a simple economic calculus in the decisions of thousands of students to try to enter such a competitive and arduous profession.

**Table 56 – Brazil, income of medical doctors, 1999**




IBGE, PNAD 1999

One would expect that, on the long run, higher education institutions would adjust their offerings to respond to the demand, and would benefit financially from being attuned to the market. In practice, the private institutions are already squeezed in low cost fields (social professions, education), where the supply of places is abundant, and have difficulties entering in fields like medicine and engineering, where the costs are higher, and external controls are tighter. Public institutions, meanwhile, cannot change their long-term investments and human resources at will, and have no incentives to adjust their offerings to the demand.

Table 57 allows us to see how supply and demand varies by type of institution: demand is high for federal and state institutions, and low for the private ones. The last column in this table is a measure of the efficiency of the different segments, in terms of their ability to keep their students enrolled after they are admitted. If a course program takes four years, an efficient program should have about 4 students enrolled for each place offered every year. We can see that the Federal institutions are closer to this figure, while the private sector is below 2. Table 58 provides another indication of efficiency, comparing the number graduates with those entering the course programs every year. In a no-growth situation, we would expect both numbers to be approximately the same, or 100%. What we see is that, in public institutions, the proportion is about 50%, going down to 30% in the private sector. There is some variation by fields of knowledge, with the highest percentages in the health professions, and in the very small field of agriculture and animal husbandry. These finding go against the common assumption that, since students do not have to pay for public education, they would invest less and drop out more easily from these institutions than from private ones. This assumption may be correct in general terms, but there are other factors working in the opposite direction. Students in public institutions are usually more qualified, and have to invest more to pass the entrance examinations. Students in private institutions may not be able to keep paying their

tuition, may have difficulty following the course programs, and may be frustrated by the quality of the education they are getting.

**Table 57 – Brazil, candidates per seat, by type of institution**

| Brazil, candidates per seat, by type of institution | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | candidates | openings | first year admissions | total enrollment | graduation | candidates / openings | admissions /openings | graduation/ admissions |
| **a) by type of institution** | | | | | | | | |
| Technological Centers | 63,390 | 8,357 | 8,065 | 23,322 | 2,357 | 7.6 | 96.5% | 29.2% |
| University centers | 270,245 | 167,405 | 110,510 | 244,679 | 25,976 | 1.6 | 66.0% | 23.5% |
| Isolated faculties | 554,443 | 261,918 | 192,314 | 472,864 | 58,763 | 2.1 | 73.4% | 30.6% |
| Integrated faculties | 111,703 | 78,742 | 50,657 | 144,441 | 20,675 | 1.4 | 64.3% | 40.8% |
| Institutes | 893 | 956 | 409 | 1,225 | 120 | 0.9 | 42.8% | 29.3% |
| Universities | 3,039,236 | 698,909 | 535,602 | 1,806,989 | 216,843 | 4.3 | 76.6% | 40.5% |
| **total** | 4,039,910 | 1,216,287 | 897,557 | 2,693,520 | 324,734 | 3.3 | 73.8% | 36.2% |
| **b) by ownership** | | | | | | | | |
| Phylantropic, communitarian, religious | 879,930 | 458,494 | 316,867 | 925,939 | 107,917 | 1.9 | 69.1% | 34.1% |
| State | 963,113 | 96,179 | 91,727 | 332,104 | 43,757 | 10.0 | 95.4% | 47.7% |
| Federal | 1,156,096 | 120,486 | 117,507 | 482,750 | 59,098 | 9.6 | 97.5% | 50.3% |
| Municipal | 59,709 | 28,967 | 23,849 | 72,172 | 9,596 | 2.1 | 82.3% | 40.2% |
| Private | 981,062 | 512,161 | 347,607 | 880,555 | 104,366 | 1.9 | 67.9% | 30.0% |
| **Total** | 4,039,910 | 1,216,287 | 897,557 | 2,693,520 | 324,734 | 3.3 | 73.8% | 36.2% |
| **Source: INEP, Censo do Ensino Superior, 2000** | | | | | | | | |

**Table 58 – Brazil, internal efficiency of higher education, by fields and types of institution**

| Brazil, internal efficiency (*) of higher education, by fields and type of institution | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Agriculture and animal husbandry | social sciences, business and law | Sciences, mathematics and IT | Education | engineering, production and construction | humanities and arts | health and welfare | services | Total |
| Non-profit (**) | 23.7% | 34.9% | 29.0% | 35.7% | 31.9% | 34.0% | 38.6% | 14.7% | 34.1% |
| State owned | 45.2% | 54.4% | 43.1% | 42.3% | 48.4% | 51.8% | 71.8% | 36.4% | 47.7% |
| Federal | 55.4% | 63.0% | 38.4% | 35.4% | 41.8% | 51.8% | 81.6% | 33.6% | 50.3% |
| Municipal | 35.8% | 44.7% | 40.1% | 40.9% | 32.7% | 29.8% | 30.1% | 0.0% | 40.2% |
| Private | 27.8% | 29.8% | 29.0% | 41.2% | 22.5% | 21.0% | 27.2% | 9.1% | 30.0% |
| Total | 40.8% | 35.4% | 32.2% | 38.9% | 33.9% | 37.6% | 43.0% | 12.4% | 36.2% |
| (*) - Number of students graduating divided by first-year enrollment | | | | | | | | | |
| (*) religious, communitarian, philanthropic | | | | | | | | | |
| Source: INEP, Censo do Ensino Superior, 2000 | | | | | | | | | |

*Policies*

Brazil has one of the lowest access rates to higher education in the region - only 8% of the age cohort, or 13.7% in gross terms[85] – and it has the most expensive system of public universities (Table 16). Part of the high cost of public higher education is explained by the expenses with the teaching hospitals, which double as public hospitals for the national health system, and with the soaring costs of generous retirement benefits for the academic and administrative personnel. Salaries, meanwhile, have remained stagnant, and the government faces strong hostility from large segments of the professorate. The expansion of secondary education in recent years is expected to lead to a large increase in demand, but there is no expectation that either the Federal or state governments will step up their investments in the sector.

The most pressing policy issues are, therefore, how to make the public sector more efficient, increasing its coverage and quality; and how to make sure that the

[85] Based on data from the 2000 higher education and population censuses, and the 1999 National Household Survey for the age composition of the student body.

expansion of private education does not run out of control. Until recently, the main bottleneck for the expansion of higher education, both public and private, was the small number of students concluding their secondary education. In recent years, secondary education has expanded very significantly, but different assessments show that the level of competency of the students coming out to secondary school is very low, making it difficult for them to follow more demanding courses at the tertiary level. [86]

To account to the forthcoming increase in demand, there is a growing concern with the role of distance education and the need to expand post-secondary, short-term technical education, but whatever is happening in these areas remains mostly outside the government's oversight. At the same time, there is a concern with quality, and with the provision of the skills the country needs for improving the quality of the national workforce.

For the public sector, there was an attempt, in the late nineties, to grant effective financial and management autonomy to the universities, associated with a system of quality assessment and provision of public resources based on outcomes. This project stalled, however, due to the need to change the Constitution to grant the universities authority over their staff; to the difficulty in providing them with financial security for the transition period; and because of generalized mistrust and opposition within the academic community. The government was more successful in establishing a permanent system of assessment of course programs for public and private institutions, and the existing education legislation requires higher education institutions to go to periodic re-accreditation, according to procedures still to be defined by the National Council of Education.

The policies for the provision of high quality, technical and scientific competence take place mostly at the level of graduate education, which are discussed below, and the general sense is that the existing capacity is more than what the productive sector can absorb. The quality of education at the lower end, however, seem to be much more problematical.

*Peru*

*Historical background*

Peru has the oldest university in the continent, the *Universidad Nacional Mayor de San Marcos*, established by the Church in 1551, today the country's leading public institution. Early in the 19th century, the news about the *Reforma* Movement in Argentina reached Peru, and its university was transformed according to the values of the Cordoba movement – self-government, student participation, and free education.[87]

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[86]Brazilian students had the lowest scores among the countries participating OECD International Student Assessment of the year 2000 OECD, Programme for International Student Assessment 2001(PISA), a finding which is coherent with results from national assessments such as SAEB and ENEM. See OECD, Programme for International Student Assessment 2001.

[87] What follows is based on Peru, Ministerio de Educación and Comisión Nacional por la Segunda Reforma Universitaria 2002.

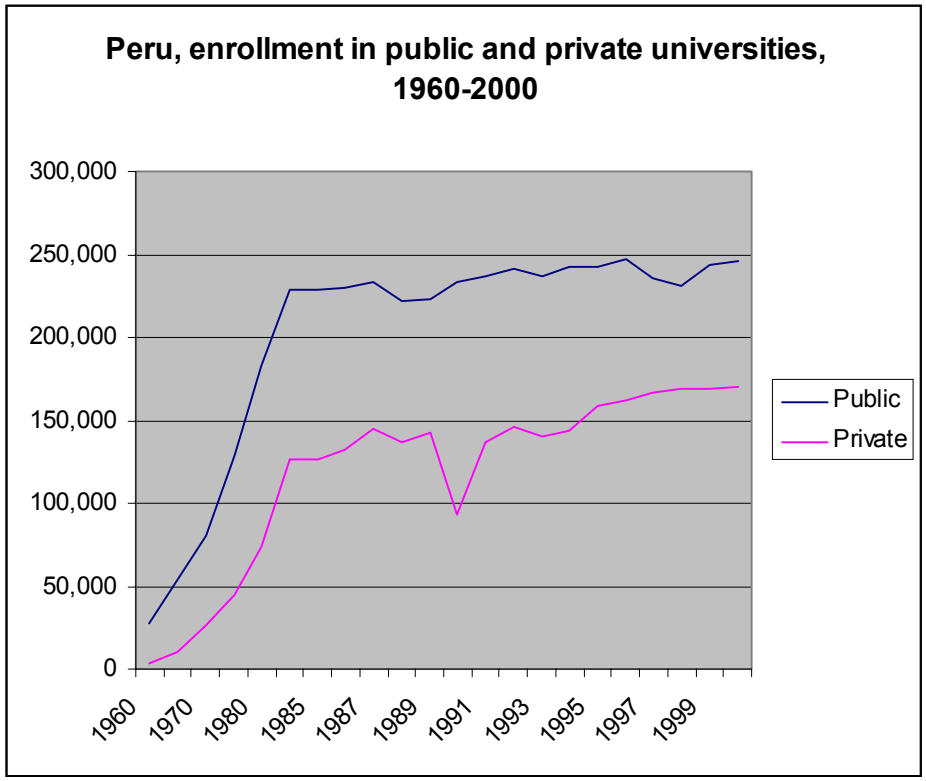
In the 1970s, the military government introduced some changes, including the transformation of the old faculties into departments, and an effort to create instruments for the coordination of higher education to the benefit of the modernization of the economy. With the return to democracy in 1980, a new legislation of 1983 (Law 23733) reestablished the old system of autonomous universities and faculties. In the early nineties, the Alberto Fujimori gave more freedom for private universities to develop, and reduced the support and control of public universities by the government.[88] In 1960, there was only one private university in Peru; in the nineties, about 35% of the students were in private institutions.

*Growth and segmentation*

University enrollments in Peru grew very fast in the early years of economic and social modernization, until the mid-eighties, and did not grow very much since then. As we can see on Table 59, the public sector remained the largest throughout. Stagnation in enrollment in the public sector was related to economic stagnation in general, and to restrictions in public expenditures; in the private sector, it was probably related with the absence of a richer urban economy to support it.

[88] The main legal acts of the period were the Decree Law 739, which made it easier for students to obtain the "bachillerato"; the Law number 26439, of 1995, establishing a National Council (CONAFU) to grant authorization for the establlishment of new universities; and the Decree Law 883, of 1996, regulating private investments in education.

**Table 59 – Peru, enrollment in universities, 1960-2000**[89]




Besides the universities, Peru has a large non-university higher education sector, comprising pedagogical and technological education institutions, which explains why the country has one of the highest rates of tertiary education enrollments in the region (Table 8).[90]

**Table 60 - Peru, student enrollment in non-university higher education, 1997**

| Peru, student enrollment in non-university higher education,1997 | | | |
|---|---|---|---|
| | enrollment | | |
| | public | private | total |
| Institutos Superiores Pedagógicos | 62,324 | 51,362 | 113,686 |
| Educación Superior Tecnologica | 87,611 | 107,361 | 194,972 |
| **Total** | 149,935 | 158,723 | 308,658 |

[89] Sources: until 1985, McLauchlan de Arregui 1994; other years, Asamblea Nacional de Rectores, Dirección de Estadística e Informática. Most of the information available from this sector comes from a 1997 census done by Peru's Ministry of Education.

[90]Most of the information available from this sector comes from a 1997 census done by Peru's Ministry of Education.

These are not necessarily short-term courses. Technological institute courses last three years and teacher-training institutions require five years of coursework, the same as university bachelor degrees in education. Selectivity may be as high in the better institutes as it is in the good universities. At the aggregate level, however, because there are so many institutes, admittance does is more likely. For the Technological institutes, more than 80% of the applicants are admitted. We can get a sense of these Technological institutes by looking at the distribution of students by areas of study.

**Table 61 – Peru, students in Technological Institutes, by areas of study, 1997**

| Peru, students in Technological Insitutes (Educación Superior Tecnologica), 1997 | | | |
|---|---|---|---|
| **Areas** | **total students** | **main specialties** | **number of students** |
| Commerce and services | 43,205 | Secretario Ejecutivo | 9,289 |
| | | Contabilidad | 19,183 |
| | | Administración | 7,259 |
| Industrial Sector | 27,434 | Mecánica automotriz | 7,243 |
| | | Electrónica | 6,721 |
| | | Mecánica de producción | 5,130 |
| | | Electricidad | 3,265 |
| Health services | 58,017 | Enfermeria Tecnica | 38,340 |
| Communication and informatio | 49,532 | Computacion y informática | 43,911 |
| Agriculture | 7,541 | | 7,541 |
| other | 9,243 | | 47,090 |
| Total | 194,972 | | 194,972 |
| Source: Peru, Ministerio de Educación, Educación Superior Tecnologica | | | |

According to estimates by Patricia McLauchlan de Arregui, the expenditure per capita on public higher education in Peru went from 1,455 US dollars in 1970 to 262.46 in 1990 in real terms, with reductions starting, therefore, well before the reforms in eighties and nineties.[91] With that, Peru could not start to build a system of modern universities, with full-time staff, investments in research and graduate education.

The alternative was to look for independent sources of income, but this was also limited by legislation that required that public higher education should be free of tuition. In the 1980s, the estimation is that public universities were not able to raise more than 7% of their budget from non-government sources. In the 1990s, the search for independent income intensified, and McLauchlan de Arregui presents a list of the main strategies used by institutions to raise money: selling products and services derived from teaching and research (fish, chicken, plants, wood, milk, medical and dental services, laboratory services); the creation of small firms within the universities, doubling as teaching places and shops selling furniture, canned food, cheese, and others; the use of the existing equipment to provide services to the public – renting stadiums and installations, computers, providing certification to industrial

[91] McLauchlan de Arregui and Melgar Salmón 1993

products, services of topography; professional services provided by the staff, in engineering, architecture, legal and management consultancy and advice; purely commercial ventures within the institutions, such as gas stations, newspapers, oil wells.

This list shows the creativity and energy of the institutions, which could be used to make the universities more responsive to the needs of society. However, in the absence of clear rules and well-defined academic priorities, these semi-commercial activities run the risk of being appropriated privately by some groups within the institutions, without any educational benefits, and are not enough to compensate the lack of resources for the core activities. There was an evolution in this, however, and some better-designed ventures were started. In addition, graduate programs, diploma, extension and professional development courses were exempted from the gratuity restriction. Today, up to 50% of some of the larger public universities' revenues are self-generated.

*The labor market for graduates*

Peru does not have a large industrial and high technology sector – most economic activities, both for the educated and the non-educated, are in the services sector – and, more particularly, in informal or small economic units like market stands and shops. The largest occupation for those with higher education is teaching.

**Table 62 – Peru, economic activities of the urban population**

| Peru, economic activities of the urban population of 14 years and more, 1995 (percentages) | | | | | | |
|---|---|---|---|---|---|---|
| **Main economic activities** | **total** | **no education** | **primary** | **secondary** | **higher ed, non univesity** | **higher ed, university** |
| agriculture | 5.6 | 21.6 | 12.0 | 4.4 | 1.5 | 1.5 |
| street vendors | 9.9 | 18.4 | 14.4 | 11.3 | 4.5 | 4.0 |
| teaching | 7.2 | 0.2 | 0.6 | 1.7 | 16.5 | 22.7 |
| small shops | 4.8 | 6.9 | 7.0 | 4.9 | 3.2 | 2.5 |
| transport of passengers | 6.1 | 1.4 | 5.4 | 8.6 | 3.9 | 3.6 |
| specialized shops | 5.0 | 3.6 | 4.4 | 5.4 | 5.2 | 4.7 |
| construction | 4.6 | 3.4 | 6.5 | 5.8 | 1.7 | 2.2 |
| dometic service | 4.4 | 10.9 | 8.5 | 4.7 | 1.0 | 0.2 |
| public administration | 4.8 | 1.1 | 1.4 | 2.8 | 12.3 | 8.1 |
| restaurants, food stores | 4.7 | 9.5 | 6.9 | 5.4 | 2.3 | 1.7 |
| vendors in market boots | 3.2 | 5.7 | 4.8 | 3.8 | 1.5 | 0.8 |
| vendors of agricultural products | 3.0 | 0.4 | 1.4 | 3.0 | 3.6 | 5.2 |
| manufacture of clothing | 2.6 | 0.8 | 2.4 | 3.6 | 2.2 | 1.0 |
| hospitals, medical offices | 2.5 | 0.4 | 0.3 | 0.8 | 6.4 | 6.6 |
| mining | 1.4 | 0.4 | 1.3 | 1.5 | 1.0 | 1.8 |
| vehicle maintenance | 1.8 | 0.3 | 1.5 | 2.4 | 2.1 | 0.7 |
| manufacture of forniture | 1.5 | 0.3 | 1.6 | 2.1 | 0.8 | 0.5 |
| home repairs | 1.1 | 0.4 | 0.9 | 1.3 | 1.9 | 0.4 |
| bakery | 1.2 | 0.4 | 1.5 | 1.5 | 0.6 | 0.6 |
| fishing and related activities | 0.7 | 0.3 | 1.3 | 0.9 | 0.4 | 0.2 |
| others | 23.8 | 13.4 | 16.0 | 24.2 | 27.4 | 31.1 |
| | 99.9 | 99.8 | 100.1 | 100.1 | 100.0 | 100.1 |
| **Surce: National household survey, 1995** | | | | | | |

*External efficiency: adjustment to the labor market*

In the mid nineties, Peruvians started to discuss alternatives for their universities, and invested in an analysis of the existing institutions and their links with

the job market.[92] First, it was necessary to dispel some widely held assumptions. It was wrong to complain that there were too many students in the social sciences and professions, and too little in the technical fields and engineering. In fact, the distribution of students by fields of knowledge is not very different from what we find in other countries in the region, and the proportion of enrollments in engineering was relatively high (Table 63).

**Table 63 – Peru, enrollment in universities by fields**

| Peru, enrollment in higher education by fields, 1980-84 to 1990-92 | | |
|---|---|---|
| | **1980-84** | **1999-92** |
| Total enrollment | 294,780 | 364,753 |
| Arts and humanities | 1.0 | 1.6 |
| social sciences and communication | 17.9 | 14.8 |
| administration | 21.7 | 18.1 |
| Engineering | 23.2 | 23.7 |
| health | 9.8 | 12.5 |
| agriculture | 5.3 | 4.7 |
| natural and exact sciences | 4.8 | 3.8 |
| education | 8.7 | 12.3 |
| law | 7.5 | 8.5 |
| Source: MacLaughan de Arregui, 1994, table 10. | | |

Second, it was necessary to examine the widespread assumption that most people with higher education ended unemployed, or working as "taxi drivers" and in other activities not requiring higher education competencies. In fact, in comparative terms, persons with higher education were much less prone to become unemployed than those with less education. The available data showed, however, that except for medicine, most graduates worked outside their fields of specialization, often in jobs requiring less qualification, or remained outside the work force (Table 64). This lack of correspondence between career and occupation is to be expected in some fields, especially in the social sciences, but the Peruvian data seem to be too high for any standard, particularly in the technical fields, suggesting a demand for education that had no correspondence in the labor market.

[92] See McLauchlan de Arregui 1994.

**Table 64 – Peru, agreement between degree obtained and occupation**

| Peru, agreement between degree obtained and occupation, 1986-1992 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| field | 1986 | | | | 1992 | | | |
| | same | similar level | lower qualif | unemployed, not working | same | similar level | lower qualif | unemployed, not working |
| Law | 29 | 22 | 29 | 20 | 40 | 9 | 27 | 24 |
| Administration | 12 | 16 | 52 | 20 | 4 | 15 | 59 | 22 |
| Accounting | 41 | 6 | 31 | 22 | 29 | 7 | 42 | 22 |
| Economics | 16 | 13 | 49 | 22 | 25 | 7 | 51 | 17 |
| Education | 51 | 9 | 11 | 29 | 47 | 6 | 24 | 23 |
| Systems analysis | 17 | 0 | 33 | 50 | 17 | 0 | 46 | 37 |
| Electric engineering | 33 | 0 | 44 | 23 | 11 | 45 | 33 | 11 |
| industrial engineering | 5 | 25 | 30 | 40 | 12 | 24 | 40 | 24 |
| mecanic engineering | 31 | 15 | 15 | 39 | 20 | 13 | 47 | 20 |
| nursing | 41 | 0 | 22 | 37 | 47 | 0 | 18 | 35 |
| medicine | 65 | 6 | 6 | 23 | 82 | 0 | 0 | 18 |
| psychology | 38 | 0 | 43 | 19 | 2 | 6 | 27 | 65 |
| Source: McLaughlan de Arregui, 1994, p. 30 | | | | | | | | |

## *Internal efficiency*

In spite of these problems, demand for higher education in Peru continued to grow, and, by the year 2000, only about one in four of the applicants were admitted to some kind of higher education (Table 65). Even so, the estimation is that, for students entering higher education in Peru between 1975 and 1985, only about a third concluded their studies. The problem affects both public and private institutions, being, on average, worse in the private sector. The number of students entering the system in proportion to those graduating, during the early period of expansion, was close to 14 in the private sector, and went down in the following years, as the system ceased to grow (Table 66). More recently, only one half of the students entering public institutions, and one fourth of those entering the private ones, were getting their degrees. The largest variations are by fields of knowledge: in medicine, the proportion of graduates is 97%; in Law, it is 39%; in administration, 25%; and, in civil engineering, 21%, to name a few.[93]

[93] McLauchlan de Arregui 1994, table 23.

**Table 65 – Peru, applicants and entrance to higher education, 1991-2000**[94]

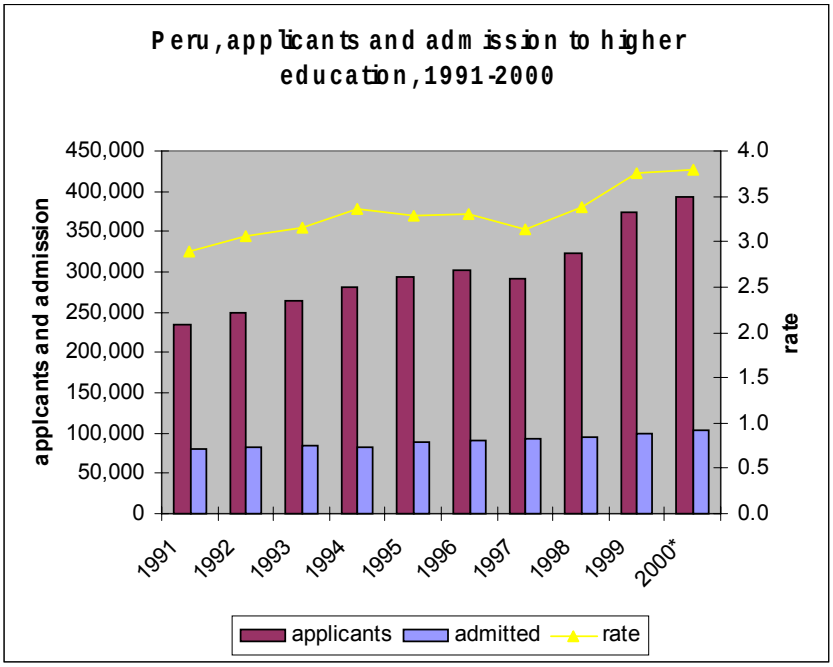
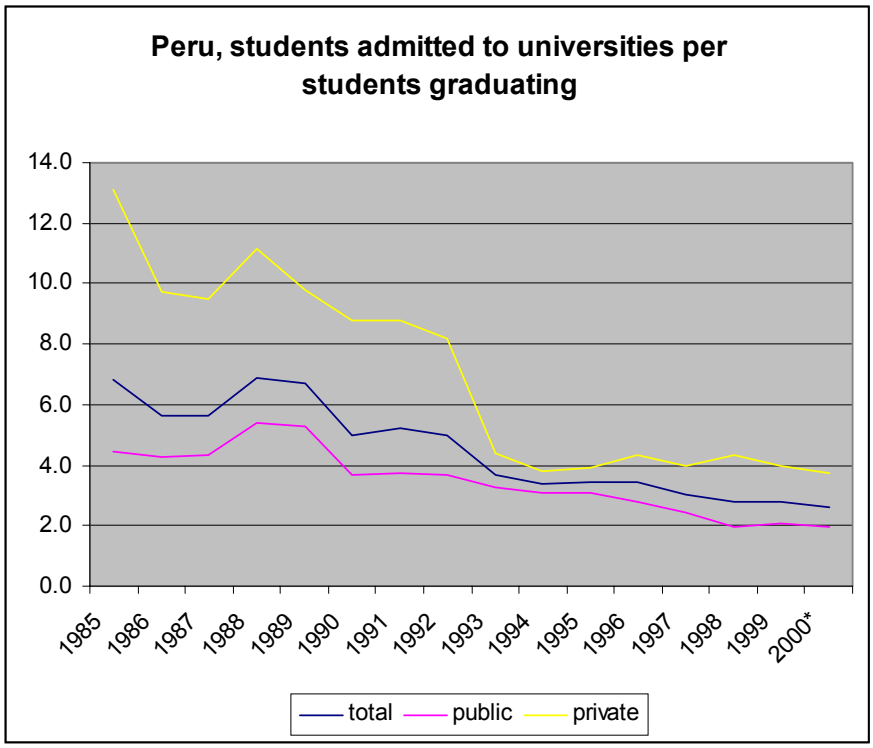



**Table 66 – Peru, students admitted to universities per students graduating**




[94] Source: Ministry of Education, Direction of Statistics and Informatics.

*Policies*

The new Peruvian government of Alejandro Toledo established a Commission to implement a Second University Reform in Peru, the first being the one of the 1910's. The only indication of what the Commission will do is a statement of intentions in a document of March 2002, posted in the Ministry of Education's Internet site.[95] The questions posed by the Commission in this initial document are all the good and necessary ones (Table 67). To make higher education relevant to economic growth and innovation, however, appears only as part of the 7th in 10 questions; and there is little or no reference, in the document, to the large non-university sector of Peruvian higher education. The task of reconciling so many goals is likely to be a difficult one.

**Table 67 – Peru, the challenges of the Second University Reform**

| **Perú – El Reto Actual** |
|---|
| ¿Cómo conciliar la expansión de la matrícula con la calidad académica? |
| ¿Cómo incrementar los recursos económicos en un contexto de escasez donde compiten múltiples y apremiantes demandas sociales? |
| ¿Cómo asegurar que los recursos económicos que el Estado provea se dirijan efectivamente a implementar procesos conducentes a la mejora de la calidad académica? |
| ¿Cómo modernizar la gestión universitaria manteniendo las conquistas democráticas de la primera reforma? |
| ¿Cómo apoyar a los diversos modelos universitarios peruanos privados y públicos, asegurando calidad en los resultados? |
| ¿Cómo instalar seriamente la investigación en las universidades que se plateen tal reto? |
| ¿Cómo fomentar la pertinencia nacional, regional y local de las universidades, hoy sumergidas en modelos abstractos y lanzarlas a protagonizar las acciones de desarrollo económico social? |
| ¿Cómo generar una idea universitaria en la comunidad universitaria que vaya mas allá de las llamadas "reivindicaciones estamentales" que reducen el concepto y la práctica universitaria a la mera defensa de supuestos derechos sin el contrapeso de compromisos firmes con el resto de los peruanos, especialmente los pobres, que no están en las universidades? |
| ¿Cómo articular un sistema universitario que lidere y dinamice el sistema educativo peruano? |
| ¿Cómo conseguir estos objetivos generales sin limitar la autonomía universitaria ni coactar la libertad de enseñanza? |

## V - Graduate education and research

On paper, Latin American universities are supposed to be research-based institutions, according to the classic Humboldt model and the contemporary research universities in the United States and Europe. In practice, Latin America has some significant traditions of scientific and technological research, particularly in health

[95] http://www.minedu.gob.pe/novedades/reforma_universitaria/presentacion.htm

and agriculture, with strong links with applications in the areas of tropical diseases, plant development, and natural resources. Some of this research has indeed taken place in a few higher education faculties. However, the region has followed the French tradition of keeping education and research apart. Most countries have their own national science and technology ministries and councils, and non-university public research centers. [96] It is only in the sixties and seventies that some countries started to reorganize higher education along disciplinary departments, and to establish graduate programs for the provision of master and doctoral programs, in association with research.

There are at least three independent, but overlapping, forces behind the recent drive for graduate education and research. The first comes from within the higher education sector itself, to improve its quality. It is an effort to emulate the pattern of the developed economies, where university professors are supposed to hold a doctor's degree and do research. To stimulate graduate education, ministries of education link academic promotion to the attainment of graduate degrees, and provide fellowships and subsidies for graduate education, in the countries and abroad. Whenever this policy is successful, it leads to an increase in quality in some places. There are, however, some risks associated with this policy, since it also stimulates the creation of graduate programs of dubious content, and the research it generates may be more useful for the professional advancement of the researcher than to the advancement of knowledge or the development of innovation. More cause of concern is the question of whether this kind of quality improvement at the top of some leading institutions can ever to reach the bottom of such a large and uneven higher education systems as the ones in Latin America today.

The second drive comes from the research agencies – ministries, councils, and academies. Their concern is with science and technology, not higher education as such. They respond to two different motivations, not necessarily in opposition. One is more academic, the support for science for science's sake; the other is more applied, a concern with the uses of scientific and technological knowledge and competence for economic, social and military objectives. These motivations are associated with different ways of organizing research: thorough research grants given to scientists through peer review procedures, or through efforts to develop scientific competence in specific areas and fields. In this second mode, there is often an effort to establish closer links between science and technology institutions and the private market.

The third drive is more tuned to the market place. One important component of this drive is the creation of advanced education programs in areas with stronger market demand – particularly in economics, business administration, and in advanced medical specializations. Another component is the effort of some departments and faculties, particularly in engineering, to establish long-lasting relationships with government agencies and the private sector, to provide them with technical support, and, eventually, create opportunities for practical experiences for their students.

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[96] See, among others, Albornoz, Kreimer, and Glavich 1996;Cházaro G. 1998; Schwartzman 1991; Cueto 1989.

Two issues are always present in the consideration of graduate education and university research in Latin America, quality and relevance. The strong incentives for academic staff to obtain their doctoral degrees, and the relative isolation of university research centers and groups from external clients or international research standards, can create problems of quality that are intensified whenever research resources is distributed according to regional, institutional or other non-scientific criteria. The values of academic research – peer review, individual freedom in the choice of subjects, assessment through classic scientific indicators such as international publications - when applied in isolation, outside a robust system of innovation, can lead to unexpected negative consequences, such as the absence of critical mass, the inability to keep up with the scientific frontier, and mediocre research. One reaction to this situation is to try to target science and technology to specific goals, to make it more relevant and applied, or to associate it with more ambitious projects of national development. In fact, the most notorious examples of scientific development in Latin America and other developing countries have occurred when partnerships between academic research and broader national institutions have occurred[97] "Science planning", however, has its own pitfalls, in trying to "pick the winners" and anticipate the future, and in creating costly and ineffectual bureaucracies. More fruitful is the trend to stimulate research centers and groups to compete for resources in a broad market, public and private, and to develop more flexible institutional settings and career patterns for the researcher. This trend has its own risks - to move researchers and research groups further away from their higher education institutions - but seems to be the best way to keep research competitive, and properly financed.[98]

With these notions in mind, we can see, however briefly, how the five countries in this paper are dealing with the issues of graduate education and university research.

Brazil has probably the largest and better-developed graduate education and university research system in the region, and is growing (Table 68). There were 1,473 degree-granting graduate course programs in the year 2000, more than half providing doctor degrees, with about 97 thousand students. Almost all these programs are in federal universities and in public universities of the state of São Paulo[99]. 8.3 thousand MA and 5.3 thousand doctoral degrees were granted in 2000. The Brazilian National Household Survey of 1999 found 231 thousand persons with graduate education in the population, working mostly in teaching (20%) or as medical doctors (12%); one third of them were civil servants. Other sources indicate that there were about 12 thousand persons doing research and development in about 1.8 thousand companies in the country, and 27 thousand researchers working in 12 thousand "research groups" surveyed by the Ministry of Science and Technology. Detailed tracer studies show

[97] Adler 1987; Gaillard, Krishna, and Waast 1997; Solingen 1994.

[98] Plonsky 1993; Vessuri 1995.

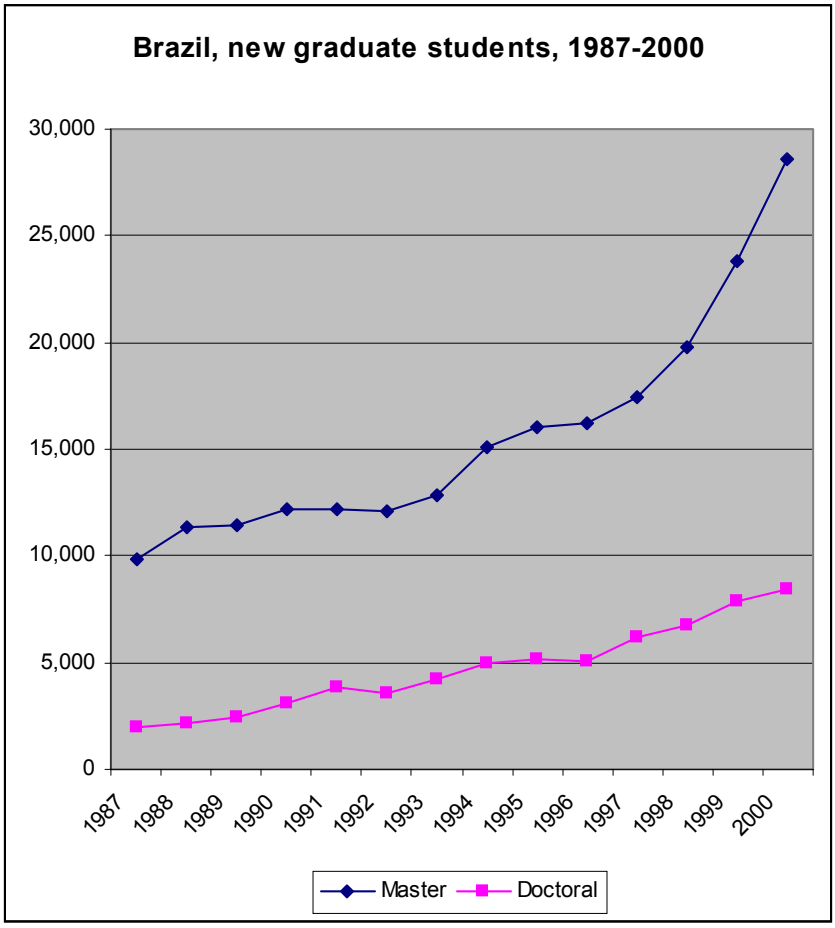
[99] Data from the Ministry of Science and Technology's website, http://www.mct.gov.br. There is information also in CAPES' website, http://www.capes.gov.br . Most it, however, is for 1997.

that most graduate students find jobs in academic institutions, except for those in administration, medicine and engineering.[100]

Graduate education in Brazil is highly subsidized. In the past, most students in well assessed doctoral and masters programs had a fellowship for their maintenance, and free tuition. Today, about 20% of the MA students, and 30% of those in doctoral programs, get maintenance fellowships from the federal government, and many others from state agencies, such as São Paulo's Foundation for Research Support (FAPESP), and there is still no tuition. CAPES, the agency for graduate education in the Ministry of Education, has maintained for many years a well-regarded system of peer-review evaluation of graduate education, and most students have access to fellowships from CAPES, the National Council for Scientific and Technological Development, the São Paulo Science Foundation (FAPESP) or other agencies. Most of these course programs are in sciences, health and engineering. Besides, universities are free to provide different kinds of post-graduate extension and specialization courses, for which there is very little information. "Specialization courses" are supposed to last for a year, and abide to some formal rules from the Ministry of Education. In 1998, there were about 2.8 thousand such course programs in the country, 53% in the social sciences and humanities, and 20% in health. Private institutions gave half of these courses. Public institutions cannot charge tuition for regular students, but can charge for extension and specialization courses, and this has become a significant source of additional resources for many institutions.

[100] The other fields covered by the study are agronomy, biochemistry, physics, chemistry and sociology. See Velloso 2002, p. 410. See also Velloso 2000.

**Table 68 – Brazil, new graduate students, 1987-2000**[101]




Mexico also reports a sizeable graduate level, with 118 thousand students enrolled in the year 2000, 8.4 thousand of which in doctoral programs, and 82.2 thousand working for master degrees.[102] Most specialization courses are in health, and most master programs are in the social and administrative sciences and education. About half the masters students are in the private sector, which responds to a market demand for higher qualifications in the services and health areas. The doctoral programs have a more scientific and technological profile (Table 69).

[101] Source: Brazil, Ministry of Science and Technology homepage, http://www.mct..gov.br

[102] Mexico, ANUIES - Asociación Nacional de Universidades e Instituciones de Nivel Superior 2001b.

**Table 69 – Mexico, enrollments in post-graduate education, by fields of knowledge**

| Mexico, enrollments in post-graduate education, by fields of knowledge | | | |
|---|---|---|---|
| | specialization | master | doctoral |
| Agriculture | 0.96% | 2.10% | 5.64% |
| Health | 58.01% | 2.74% | 11.31% |
| Natural and exact sciences | 0.77% | 3.92% | 29.72% |
| Social and administrative sciences | 29.44% | 54.38% | 20.72% |
| Education and humanities | 4.51% | 20.95% | 16.13% |
| Engineering and technology | 6.32% | 15.92% | 16.48% |
| Total | 27,406 | 82,286 | 8,408 |
| % in private institutions | 27.33% | 46.45% | 13.57% |

Brazil, for many years, has maintained a system of research fellowships for university professors that, in practice, meant a significant salary increase for those with better academic credentials. A similar program exists in Mexico since the mid-eighties, as a National System for Researchers that, in 1992, benefited about 20% of Mexico's full-time faculty. A study of the *Universidad Nacional Autónoma de Mexico*, the largest in the region, shows that only about 10% of its academic staff is engaged in some sort of research.[103]

Graduate education in Chile has also been growing in recent years, but is still very limited in size. The expansion at the master's level followed a pattern similar to Mexico's, as a response to more qualified degrees in the education and services sector. Doctoral degrees, on the other hand, have not expanded very significantly. They are concentrated in the traditional universities, and research is supported by research funds managed through the National Council for Science and Technology (CONICYT). In 1997, 354 projects were approved and supported by CONICYT, at an average cost of 17.2 thousand US$ each. In a comparison among countries of comparable size or level of development, Brunner finds that the number of Ph.D. graduates per million inhabitants in Chile is lower than in Brazil and Mexico (3, 11 and 4, respectively), and very far from countries such as Finland, the Netherlands and Ireland (120, 98 and 77). This, together with several other indicators of scientific and technological development, led the author to conclude that Chile is lagging behind in terms of its scientific, technological and innovative capabilities.[104]

[103] Cházaro G. 1998.

[104] Brunner 2001.

**Table 70 – Chile, enrollment in graduate education, 1982-2000**[105]

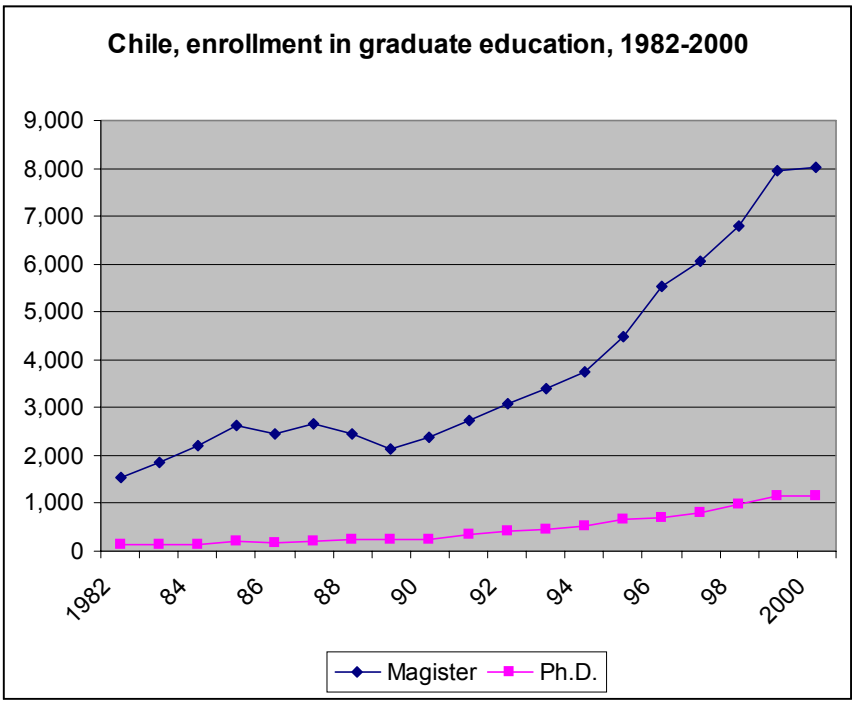



**Table 71 – Chile, enrollment in graduate education, by specialty and level**

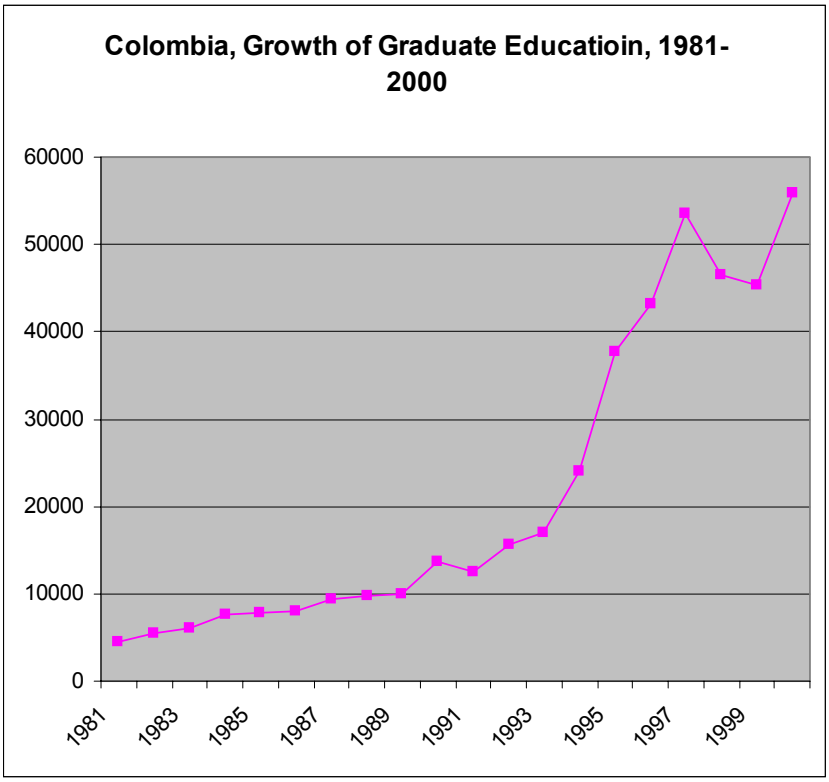
| Chile, enrollment in graduate education, by specialty and level | | | |
|---|---|---|---|
| | **Ph.D** | **Master** | **openings** |
| agriculture | 8 | 235 | 57 |
| arts and architecture | | 281 | 143 |
| basic sciences | 691 | 528 | 325 |
| social sciences | 64 | 2721 | 1,237 |
| law | | 231 | 158 |
| humanities | 143 | 731 | 231 |
| education | 42 | 1231 | 350 |
| technology | 131 | 641 | 354 |
| health | 65 | 325 | 123 |
| **Total** | 1144 | 6924 | 2978 |
| **Source: CONICYT** | | | |

Colombia has also witnessed exponential growth in graduate education in recent years, but limited almost exclusively to the master's level. Education and the social professions (law and administration) make up 75% of the enrollment; health is 10%, and engineering, 8.2%. In 1997, there were 1209 specialization, 205 master, and 13 doctoral course programs. The percentage of university teaching staff with a

[105] Sources: Consejo de Rectores de las Universidades Chilenas, Anuarios Estadísticos, años: 1982 a 1999, Santiago, Chile; Departamento de Información, CONICYT; Ministerio de Educación, División de Planificación y Presupuesto, Información Estdística 2000; Chile; Compendio de Información Estadística, Ministerio de Educación, 1989-98; Ministerio de Educación, División de Planificación y Presupuesto, Información Estadística 2000; Indicadores Científicos y Tecnológicos-1998. Indicadores Científicos y Tecnológicos-2000.

doctoral degree was 2.2 in 1999.[106] Different from the other countries, research in Colombia is not centered in universities, but in independent research centers and institutes, working often with external resources.

**Table 72 – Colombia, growth of graduate education, 1981-2000**




Finally, Peru shows also some activity in post-graduate education. In the 1996, there were about 10 thousand students enrolled in some kind of post-graduate program, 80% of which at the masters level, and about 300 working in doctoral degrees (with the remaining in specialization courses). The most populated fields for the MA programs were administration, law, education, accounting, and health.[107] By the selection of fields, it is clear that these post-graduate programs were not aimed at the creation of competency for high level teaching and research, but at providing an additional degree and qualifications for a selected group of professionals.

In short, most of the graduate education activities in the region, particularly at the master's level, provided by private institutions, seem to be in business and education, and not in the science and technology areas. Science and technology is more present in graduate programs provided by public institutions. These programs are still small, and the main professional destination of their graduates is teaching, not

[106] Colombia, Instituto Colombiano para el Fomento de la Educación Superior 2001b; Colombia, Instituto Colombiano para el Fomento de la Educación Superior 2001a.

[107] Data from the 1996 Higher Education Census, Asamblea Nacional de Rectores, processed by GRADE.

technology research and innovation in the productive sector. For instance, a recent survey on the former grantees of Mexico's National Research Council (CONACYT) showed that about 70% of them work in education institutions. They work mostly as teachers, with research as a secondary activity, and only one forth of the group work in activities related to the knowledge creation and diffusion.[108]

## VI - Summary and Proposals

*Higher education and innovation*

On a recent report on the technological capabilities of Chile, José Joaquin Brunner notes that

> Chile could be a developed country by 2010. If income grows at an average rate of 5% (a very demanding condition), a boy or a girl born today could finish basic education with a country with a standard of life similar to Portugal, South Korea or Greece. To reach this goal, it needs to increase the international competitiveness of its economy. However, if the goods and services produced in the country – its persons, companies and ideas – do not compete successfully in the global arena, the economy will stop, and there will be no development.[109]

Still following Brunner, the ability to participate and to compete at the edge of technological development and innovation is limited, today, to a select group of countries which concentrate most of the world's scientific and technological capabilities – or, more specifically, to some areas and sectors of these countries. Developing countries and smaller economies can share the benefits of knowledge societies if they are able to link to the international economy, get the knowledge and information they need, and develop their own competence for innovation. They need to develop their "platform for transfers" and participation, which requires a large stock of qualified manpower; a significant research and development establishment; infrastructure for information exchange and communications; economic integration with the international markets; the ability to acquire technologies from abroad, both in hardware and in intangible resources; the involvement of the private sector with research and development activities; and strong and fluid links between universities and industries. A quantitative analysis of indicators related each of these dimensions leads the author to conclude that Chile may not be able to keep up with the challenge. The same would apply to the other countries in the region, whose indicators are often worse than those of Chile.

The creation of effective innovation systems, including good-quality higher education, requires deliberate policies, and cannot be expected to derive from short-term market demands. If a country is successful in developing the whole set of requisites needed to participate in the modern, knowledge-based society, then an extended and good quality higher education sector is a crucial component of this whole. If it does not, higher education can continue to expand and even improve its

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[108] Ortega, Blum, and .Valenti 2001.

[109] Brunner 2001, my translation.

quality and efficiency, without, however, generating the expected benefits, and creating frustration and cynicism among the educated population.

*The findings*

We can summarize this overview of higher education in a selected group of Latin American countries by saying that the initial hypothesis of this paper, that the development of innovation competence is being thwarted by the inability of higher education institutions to respond to the demand, is not borne out by the facts. There is evidence of some queuing in a few fields such as medicine and dentistry, and, in some countries, for communications, law and some areas of engineering. However, in broad terms, the provision of higher education seems to be congruent with the current levels of economic development and occupational structure. Most occupations are in personal services, commerce and more elementary technologies (including data processing, and repairs), and this is where most of the course offerings and student enrollments are. The demand for higher education by students respond to their perceptions of the job market, to their ability to pay for their studies, and their chances to get admitted to the most prestigious course programs and professions, in terms of their previous education. The job market is also influenced by the legal rights and benefits associated to academic credentials, particularly in areas such as teaching, law, and health. However, a growing number of students are enrolled in "semi-professional" areas, such as administration and the social sciences, where formal credentials, by themselves, are of little value. The supply of higher education, particularly in the private sector, is fairly adjusted to these demands, although, in some fields, like in the medical profession, competition for admission can be fierce. The public sector is slower to adapt to market demands, and is constrained by considerations of quality, often associated with efforts of professional associations to limit competition. Graduate education is expanding in a similar pattern. At the lower level, of specialization and master programs, most students are looking for credentials, or for a better market position in business, administration, health services and engineering. At the doctoral level, the main employers are the public universities, and the main sources of support, the national science foundations and agencies.

These findings are congruent with the notion that the creation of innovation competencies should be the object of deliberate policies, and cannot be expected to come from short-term market pressures and demands. Important as these policies are, they do not address the broader issues of higher education in the Latin American region, related to the needs and aspirations of most students, who are not and will never be absorbed by the more advanced segments of professional, technical and scientific education.

We also find that the proportion of students who fail to get their degrees is very high, particularly in mass education sectors, whether in public universities of Mexico and Peru or in the private sector in Brazil. There are several possible explanations for this. Many students come to higher education from low quality secondary schools, and are unable to absorb the contents of the more demanding academic programs; they may have difficulties paying tuition; and they may become discouraged by the low quality of the education they are getting, or by the difficulties they perceive in the professional job market. We see no evidence, in the countries' policy documents, of organized efforts to change and adapt the curricula of higher

education course programs to less qualified students, or the creation of alternative education paths. On the contrary, most of the attention is placed on the need for quality improvement. We see a drift towards more homogeneous, university-type courses, and a trend to create a new level of differentiation within the system, the graduate programs. This orientation, when disconnected from the need to pay attention to the specific issues and demands of mass higher education, can easily backfire, leading to more waste of public resources and frustration.

*The quality issue*

Let us assume, for sake of these conclusions, that countries are working in all aspects of the innovation cycle, and cannot be satisfied with a higher education system that is adjusted to the job market as it is today, but unable to meet the requirements of the future. How to improve the quality of higher education beyond the market demand, responding to the different functions and keep increasing its coverage, in the expectation of future needs?

There is ample consensus, today, that governments do not have the resources and technical means to control and assure the quality of higher education institutions from above, particularly in the private sector. The alternative is to make higher education institutions to compete for quality. This can be done by tying public subsidies to the quality of the student the institutions can attract, as in Chile; by associating fellowships and other resources to good marks in peer review assessments, as done by CAPES for graduate education in Brazil; by linking salaries and other benefits do academic or teaching excellence, as in done in part in Mexico and Brazil; and by the development of national standards and assessment for undergraduate students and their institutions.

Brazil has tried different mechanisms for higher education assessment, some more successful than others.[110] Since the seventies, Brazil has maintained a well-regarded procedure for the assessment of graduate education, based on peer review and the use of indicators of research performance.[111] Programs received marks from "A" do "E, and, at some point, marks started to drift to "A", perhaps because the reviewers were nominated by the programs themselves. The current policy requires a normal distribution of concepts, with the high grades reserved for course programs of international standing, and this seems to be working.

The extension of this experience to undergraduate education is proving more daunting. The notion that universities should be subject to external assessment dates at least from the proposals of the 1985 National Commission on Higher Education Reform[112]. In the following years, university assessment was limited to "self-evaluation", by which the government distributed resources to institutions to carry on

[110] See, for a critical view of some of these experiences, Nunes, Nogueira, and Ribeiro 2001.

[111] Castro and Soares 1986.

[112] Brasil, Ministério da Educação and Comissão Nacional para a Reformulação da Educação Superior 1985.

lengthy, ineffectual and toothless procedures of self-exam. The current education law requires all higher education institutions to go through a lengthy process of periodical re-accreditation, but it is not very clear how this could be done. Peer review, which works with some limits for science-based research and graduate education, does not work so easily at the undergraduate level, where standards for quality are controversial or multiple. When, in recent years, the Ministry of Education started to implement a complex procedure for the assessment of course programs, its administration was left in the hands of "specialist committees" which, in practice, applied the values, criteria and biases of their professional corporations in their decisions. So, for instance, private teaching institutions would get low marks if they did not have full time teachers and researchers, even if staffed by good quality professionals working part time.

Brazil pioneered a new assessment procedure that is now being adopted by other countries, the "*Exame Nacional de Cursos*", a nationwide test applied to last-year students of all professional course programs. Individual results are kept confidential, but the averages obtained by the course programs are published and used as yardsticks for quality. This assessment has had great impact in public opinion, and has allowed the government to try to move against some programs of exceeding low quality in the private sector. There are, however, some important drawbacks. First, the contents of the exams are defined by specialists coming mostly from public universities, leading to uniform standards that thwart differentiation. Second, these tests measure only results, not added value, leading to a strong bias in favor of course programs that are able to attract the best students in the first place.[113] Third, the government publishes the placement of each course along a normal distribution within each discipline, but there are no defined quality standards and cut points - the public is not informed, for instance, if one can rely on a graduate from a B medical school for an appendectomy.

In spite of their limitations, it is clear that external evaluations are indispensable instruments for policy in higher education both for the public and the private sector, and the experience of Brazil and other countries in this area deserve further analysis and consideration.

*Institutional autonomy*

Assessments can only be useful if institutions are autonomous to manage their human and financial assets, and compete for public or private resources. This is the opposite of what, traditionally, university autonomy has meant in Latin America. The tradition has been that resources are provided by governments with no questions asked, except regarding accounting, purchasing and hiring procedures; while universities are free to decide whom to contract, how to teach, and to set their own standards, or to live without them. The idea now is that there should be external standards of quality and performance, and the institutions should be free to compete to meet them and be rewarded. This reversal is very difficult to achieve. Scientists and

[113] See, for an attempt to compensate for previous advantages in this exam, Soares, Ribeiro, and Castro 2001.

businessmen like the idea: they are used to compete for resources, and appreciate the notion that benefits should go to those who perform better. Unionized teachers, civil servants, and professional corporations hate it: they thrive with financial stability, assured benefits, and uniform rules and procedures. The devastating strike at the *Universidad Nacional Autónoma de México* in 2000 was provoked by the introduction of a small charge for the students, which was interpreted as a sign of "privatization", meaning the notion that universities should be free to look for resources, including by charging tuition to students that can pay. The also devastating strike in the federal universities in Brazil in 2001, although nominally for better salaries, was also motivated by opposition to a policy to link a significant part of the teachers' salaries to their performance, and as an opposition to the timid movements of the Ministry of Education towards effective university autonomy in the public sector.

*The moral hazard of credentialism*

Another important proposal is to separate the functions of education and professional certification, which are done simultaneously by higher education institutions according to the Napoleonic tradition. If a university degree is also a professional certification, and if this certification leads to advantages in a regulated labor market, this is a stimulus for the proliferation of "diploma mills", and for the students not to complain about the low quality of their courses. It is a moral hazard that should be seriously considered wherever formal education requirements are established as requisites for specific jobs or benefits – like, for instance, salary increases for schoolteachers.

If the two functions were separated, with professional certification being provided by professional bodies of some kind, higher education institutions would have to compete for quality, and would not have to abide to the curricula established by Ministries of Education or professional corporations. Brazil has had, for many years, a bar examination for holders of law degrees which is administered by the Lawyers' Association (*Ordem dos Advogados do Brasil* - OAB), and has been taunted as an example to be followed by other professions. A detailed analysis of the procedures adopted by OAB, done by Nunes and Nogueira, however, shows that these exams are mostly a way of controlling the job market for lawyers, with arbitrary criteria being used differently in each state, and cannot be considered as good assessments and reliable certifications of professional competence.

A radical alternative would be to deregulate the labor market, and do away with all kinds of professional certifications. Most Latin American countries have intricate legislation establishing the requirements, rights and benefits for professional work, with strong impact in the demand for higher education and the content and organization of course programs.[114] The real impact of these corporatist regulations, however, is not clear. When the state requires a school teacher to have a diploma in pedagogy, or a policeman to be a lawyer to get promotion, or a university professor to have a doctor's degree, these are clear stimulus to credentialism, and to the moral hazard of diploma mills. The private sector, whenever possible, tries to move away

[114] For an extended discussion and historical view, see Coelho 1999.

from these formalities. However, employers use education diplomas as proxies for quality for their employees, and can pay high premiums for the better qualified.[115]

In short, there is room for market deregulation and to turn the current, bureaucratic and mandatory regulation procedures into more decentralized, plural and competence-based assessment systems, both of higher education institutions and the professions.

*The regulation of the private market: absolute and relative quality.*

To establish quality control and standards is very difficult by itself, but becomes still more daunting when applied to systems of mass higher education reaching out to poor or ascending segments of the population. It is clear, to any observer, that many institutions providing cheap evening courses of administration to ill-prepared students in Mexico, Brazil, Colombia or Chile are not giving them much in terms of content, and providing them with almost empty diplomas and certificates. The extraordinary growth of this segment shows, however, that there is strong demand for this kind of education, and that it is good business to provide it.

The traditional impulse in many countries has been to try to close down these courses, and to forbid for-profit higher education institutions altogether. This, however, is not possible, given the inability of public institutions to continue to expand, and the obvious prejudice of demanding that all higher education institutions should be public, community based or charitable. It should be possible to have private institutions providing good education for a fee, as an honest and legitimate business.

The central issue in the regulation of the lower tiers of higher education is whether what the students get in these institutions is worthless, or even detrimental to them and to society, or whether they add some value to the students, in terms of knowledge or professional credentials. It is possible to argue that, if the student is willing to pay, and the course programs are not supported or certified by the government, there is no reason for public agencies to interfere in this private contract. At the same time, it is the role of government to make sure that the population does not buy spoiled meat or ineffective medicine, and it should be its role to make sure that the public does not buy rotten education.

However, what are the limits, and the standards, for this intervention? Castro and Navarro have argued that, even if these courses do not deliver the contents they promise, they give to the students knowledge and information they did not have before, and a better chance in the labor market. For them, "the low end of the private higher education sector has a valuable social role to play in helping less-well-endowed and less-affluent students to reach the post-secondary level. Yet, by itself it is unable to develop the requisite types of programs, materials and staff to implement

[115] Robbins and Minowa 1996.

this role. The participation of the public sector is indispensable for the private sector to fulfill this role" [116]

Thus, not only they argue against a policy of repression and suppression towards the low end of private higher education – they argue for a positive role of government in making it more useful. This same reasoning applies to the public sector. There is a clear tension, in all countries, between a concern with quality and the need to make public higher education more open to the less-endowed segments of the population. The trend, in democratic societies, is to the equity side to prevail.[117] However, these policies are seldom associated with efforts to provide education contents that are compatible with these segments; the consequence is the lowering of standards, and the flight of better-endowed students to elite institutions in the country or abroad. The alternative should be for public institutions to develop special course programs that could compensate for past limitations of less qualified students, or, more realistically perhaps, to provide them with learning alternatives more adjusted to their resources and competencies, in general and vocational education.

What should be the policy regarding the private sector in the extreme cases in which they only thing they do is to provide the student with a credential? This, of course, is the scourge of the organized professions, which demand that these courses should be closed down. However, it is doubtful that governments should act as the wardens of professional corporations. An inflation of professional degrees is not necessarily a bad thing – it can make the credentials worthless, stimulate the professions to create competent systems of certification and accreditation, and make the private sector to compete for quality. A review of private higher education in Mexico[118] shows that there are already several initiatives from private institutions to develop their own accreditation and certification procedures, and similar developments are starting to appear in Brazil.

*Issues of management, new technologies, links with the market, internationalization and differentiation*

If higher education institutions are to become more autonomous to manage and compete for resources in public and private arenas, it is only natural that they will adjust their management procedures, incorporate new technologies and approaches in their daily activities, develop stronger links with the labor, research and technical assistance markets, and look for international partnerships. Competition should also lead them to adjust their supply of slots to the requirements of the job market and the characteristics of their students, leading to a more rational use of their resources, and

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[116] Castro and Navarro 1999

[117] Recently, the Brazilian government has officially supported a policy of racial quotas in public higher education – still to be implemented - and has been pressing public institutions to create more evening courses to accommodate students who have to work during the day. The State University of Rio de Janeiro has established a quota system for students coming from public high schools, which is to be combined with other quotas based on race.

[118] Kent and Ramirez 1999.

better service to society. If, however, they have no stimulus to move and to improve, they will remain insensitive or impermeable to external assessments, and would not benefit from policies trying to make them more effective, well managed and up-to-date.

Will, and should, higher education in Latin America become more or less differentiated? There are contradictory trends in this regard. The influx of older and poorer students, the expansion of teaching institutions, the growing complexity and differentiation of the job market, all these elements seem to point to a trend away from uniform institutions, course programs and degrees, and differentiation has been a central proposal in most policy documents of the last several years.[119] What happened in Chile, Mexico and Brazil in the last decade or so, however, points to the opposite direction – the university sector is growing, while enrollments in non-university institutions and levels seem to be dwindling or stagnant.

Part of this drift is clearly spurious, like in Brazil, where private institutions seek university status to have more autonomy to establish new course programs and decide how many students they are willing to take. Most of it, however, is probably a response to the low esteem and prestige usually associated with lesser degrees. If one has to go to the trouble of studying for several years, in many cases paying for it, why not to aim at the most prestigious degrees from the start? A well-stratified system would only work in situations where admission to universities is difficult, and the benefits of short-term, vocational course programs are relatively high, as in the German tradition. None of these conditions apply to Latin American countries. In England, the unification of the old dual system several years ago was based on the assumption that the old technological institutions were providing a too narrow education to their students, and should not be segmented from the universities. Today, the number of specialized, vocational-oriented courses is as large as ever, and the students are well received by the job market. The explanation, according to a recent article in *The Economist,* is not that the market is looking for less qualified persons, but that some institutions are learning how to fine-tune their course offerings to the business sector.[120]

Another possible explanation for this trend is that the private market for higher education seems to be restructuring, with the emergence of large teaching institutions, organized like modern corporations. There are economies of scale to be made, and the use of modern technologies for distance education and management allow for the establishment of quality standards that are beyond the reach of small institutions. Some institutions operate as some kind of franchise, licensing their names and, eventually, teaching materials and other resources. There are no reasons, beyond legal regulations and language barriers, to stop these institutions from crossing borders and working as multinational teaching companies. Institutions of this kind are very different from the traditional, profession or research-based universities, and cannot

[119] See, among others, Brunner et al. 1995; The Task Force on Higher Education and Society 2000; Inter-American Development Bank 1997; Colombia, Instituto Colombiano para el Fomento de la Educación Superior 2001a.

[120] The Economist 2000; The Economist 2000

expected to replace them. However, if subject to proper incentives, they can muster enough resources and competencies to deliver standard, good quality education that is much better than what most students in many Latin American universities, public or private, are getting today.

*Demand, supply and the roles of government in higher education.*

We can conclude by stating that the main reasons why Latin American higher education institutions are not responding well to the requisites of the knowledge economy are not related to institutional barriers and distortions, but to the fact that the job markets are not demanding high quality manpower in significant numbers. A policy to enhance higher education institutions in the region should not be based on what the market wants now, but in what it may want in the future, in the context of much broader policies of increasing the innovation capabilities of countries. Even in the best scenarios, in the foreseeable future the markets will continue to demand persons with different levels of skills, which have to be supplied by highly differentiated and flexible institutions, each one looking for their niche and special competencies. The best arrangements, therefore, will be those in which governments have the vision and the instruments to foster quality, standards and plurality, and institutions have the freedom and the incentives to perform at their peak.

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